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EDITORIAL

IN our last issue we spoke of the way in which the "solid and valuable work done by professional investigators" has suffered by being "overshadowed by the more sensational doctrines of facile writers." Nowhere has this been more noticeable, or its results more unfortunate, than with regard to Psycho-analysis, which has aroused a degree of popular interest—we might almost say enthusiasm—almost without parallel in the history of scientific progress, so that most educated people possess, or think they possess, some knowledge of what the term means. Unfortunately the most accessible and popular literature has not, in general, emanated from the best-informed sources, with the result that current ideas on the subject are full of misconceptions and a state of affairs has arisen which cannot fail to produce acute apprehension in instructed observers.

The reasons for this popular vogue are not far to seek. In the first place, the practice of Psycho-analysis developed so rapidly during the war as to produce upon the public all the effect of a new and startling discovery.

Another reason is the emphasis laid by Psycho-analysis on the part played in mental life and in the determination of human conduct by "the unconscious," a view which not only appeals to the popular imagination as containing an attractive element of mystery, but also provides a convenient whipping-boy for those who wish to evade responsibility for their own imperfections.

Finally, it seems fair to say that one of the chief factors is to be found in the insistence of psycho-analysts on the paramount importance of the sex-instinct in mental activity in general and the causation of psychical disorders in particular. This has given people a chance to think and talk about sexual matters, on the pretext of scientific interest, in a way which they could not otherwise have done without gravely violating their own sense of propriety and the dictates of social convention.

This, together with the remarkable results achieved by experienced practitioners of the technique, has resulted in a great number of unqualified persons setting up as psycho-analysts and in a still greater number of foolish men and women seeking their ministrations in a most ill-advised manner.

The effect has in many cases been most detrimental both to the cause of scientific progress and to the "patients" themselves. This has served to strengthen the hands of those who are hostile to psycho-analytic doctrines, whether from mere ignorance and prejudice or on account of the inimical reaction which their peculiar features are bound to arouse in certain types of mind. The effect of this, again, has been to cause the qualified exponents of the technique to entrench themselves more deeply and to show themselves more intolerant of suggestions and criticisms coming from students outside their immediate circle than they might otherwise have done.

The resulting state of affairs is far from satisfactory, but there is good reason for hoping that it will soon improve. In the first place, the ignorance and misunderstanding which has been responsible for so much evil in this country is likely to be appreciably reduced by the new publications of the International Psycho-analytic Press and by the rendering accessible to English students of such books as Prof. Hitschmann's summary of *Freud's Theories of the Neuroses*. Secondly, there is a growing weight of opinion to the effect that strong measures should be taken to prevent the practice of psycho-analysis by unqualified persons. With this view we are strongly in agreement, though it might be doubtful wisdom to demand a full medical qualification in every case. It seems foolish to insist on a man being able to amputate a leg before he is allowed to analyse a dream, and too rigid an attitude in this respect might easily defeat its own ends. It seems not unreasonable to suggest that a man might be allowed to undertake the actual treatment of cases referred to him by a fully qualified medical practitioner—who would be responsible for the diagnosis and supervision of the case—provided he had proved himself, by examination or otherwise, to be thoroughly qualified in all the matters truly relevant to the application of the treatment.

Something of the kind is already customary in various forms of treatment ancillary to the medical profession—*e.g.*, special baths, X-ray, massage—and, given proper precautions and a high standard of examination, it is probable that a similar procedure would prove satisfactory in this case, especially now that the "new" doctrines have firmly established themselves in the medical profession itself.

As regards the scientific credentials of psycho-analytic doctrines as such we need only say that from the point of view of general psychology, there seems to be nothing in them which is in any way incompatible with accepted views. On the contrary, we believe that all their more essential features are necessary corollaries of the known laws of mental activity and the known conditions of civilised life. The apparent disparities are, we believe, due rather to ambiguities of language and the different *milieus* in which general and analytical psychology have developed—the one metaphysical, the other medical—than to inherent divergencies of theory. It is true that some of Freud's followers, as is the custom of disciples, have carried certain of his views further and have stated them more dogmatically than he himself would care to do, and there can be little doubt that he himself has unnecessarily alienated the sympathy of many students by his occasionally unfortunate use of words, notably the term Sexuality, which he uses to include all kinds of things which are only very remotely connected with sex as commonly understood.

That psycho-analytic doctrine in general lays itself open to criticism on certain specific points cannot be denied, and a good example is given in an article by Mr. W. R. Bousfield, K.C., and Dr. Paul Bousfield, published in this issue. It is also probable that psycho-analysts, rightly impressed by the immense importance of sexual factors and justifiably annoyed by the attempts of the prejudiced to deny it, have omitted to do justice to other factors. It might advantageously have been made clearer that the sex-instinct plays so large a part in unconscious mental processes not because it is more fundamental than other instincts or possesses unique properties, but because the exigencies of civilised social life habitually thwart and hold it in subjection in a way which does not apply to other equally powerful instincts.

But these are minor faults which, in common with other technical imperfections, will doubtless be rectified in the course of time. Their temporary presence does not detract from the value of the discoveries made by psycho-analytic methods or from the services which, in qualified and responsible hands, they are capable of rendering to mankind.

THE INSTINCT OF ACQUISITION

BY W. H. R. RIVERS, F.R.S.

Author of *Instinct and the Unconscious*

THE concept of acquisition is one which is very prominent in the economic and political discussions of the day. In such works as *The Acquisitive Society*, by R. H. Tawney, we are led to regard acquisition as the distinguishing feature of existing society, and, moreover, one closely connected with certain morbid characters which this society shows, a relation clearly expressed in the title of Tawney's earlier work, "*The Sickness of an Acquisitive Society.*"

In connection with the problems raised by such discussions it becomes of great importance to know how far the features of social behaviour connoted by the terms "acquisition" and "acquisitive" are inherent in the character of human beings as members of society; how far they are inborn or instinctive,and how far they are the outcome of social environment and social tradition. In other words, it is necessary to inquire whether Man, in addition to the many other instincts now generally ascribed to him, possesses an instinct of acquisition.

In discussing this question it is necessary to begin by considering the meaning to be given to the two terms "acquisition" and "instinct." Properly speaking, perhaps, acquisition should only apply to the process or act of acquiring, and should be distinguished from the process of holding or keeping objects when they have been acquired. We have to distinguish between gaining and holding.

If acquisition be used in the former sense there can be no question about the instinctive basis of the process. Such acquiring is essential to the satisfaction of most of the basic instincts, such as those of nutrition and sex, but at the same time it is highly doubtful whether there is any need to posit a special instinct. In this sense acquiring food is essential to the satisfaction of the instincts of nutrition; acquiring a mate is essential to the satisfaction of the sexual instinct; and the same holds good of the acquisition of any objects which lead directly or indirectly to the satisfaction of these instincts or to the acquisition of objects, such as weapons, prompted by the danger instincts. It is the aspect of holding or keeping that we must have in mind when we consider whether there is an instinct of acquisition, and it is with this aspect of the subject that I shall deal in this paper. When Tawney or any other economist deals with acquisition he means the acquisition of wealth, and the idea of holding that which has been acquired is given in the definition of wealth. The practical interest of the problem with which I shall deal in this paper, therefore, is concerned with the concept of property, and the problem involved is whether the concept of property has an instinctive basis.

Whether man possesses an instinct of acquisition in the sense thus laid down, however, will form only a small portion of our subject. It will be necessary to consider the nature of this instinct if it exists, where it stands in a classification of instincts, and how the original instinct has been modified by the action either of other instincts, social tradition, or individual intelligence. As a preliminary it will be necessary to inquire—it must be very briefly—what we mean by instinct, how instincts are classified, and what are the modifications they undergo.

I shall define an instinct summarily as a set of dispositions to behaviour determined by innate conditions. It is now becoming widely recognised that nearly all, if not all, the behaviour of mankind is partly determined by inborn factors, by tendencies which the individual brings into the world with him when he is born. At the same time, it is, I think, equally widely accepted that it is only very rarely that human behaviour is purely instinctive; that every instinct suffers modification through experience, and that in man the most we can expect to be able to do in studying any example of behaviour is to recognise an instinctive component as being present in more or less degree.

I have elsewhere [1] distinguished two main varieties of instinct. One kind, which acts purely in the interests of the individual or of the preservation of the race, has in its unmodified form a crude character according to which behaviour is not graded in response to the needs to be met, but the instinctive tendencies exert their full effect independently of the nature of the stimulus which sets them in action. The instincts of the other kind, which act mainly in the interests of the group, reveal themselves in behaviour graded, often very delicately, according to the needs to be met. In Man at least this character of grading also forms one of the chief modifications to which the cruder, "all-or-none" instincts become subject as the result of experience. It is often a problem of the utmost difficulty to determine how far the modification of a crude, "all-or-none" instinct in the direction of grading is due to the influence of other instincts of the graded kind or to the action of experience. This difficulty is especially great in the case of human instincts, and we shall find that the instinct of acquisition forms no exception to this rule.

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[1] *Instinct and the Unconscious*, Cambridge, 1920, p. 43 *et seq.*

With this preliminary introduction, I can proceed to my proper subject. I will begin by dealing with a few of the facts which point to the existence of an instinct of acquisition in animals other than Man.

The Instinct of Acquisition in Animals.—The examples of animal behaviour which have especially attracted attention as evidence for an instinct of acquisition are cases of hoarding, and especially such apparently irrational hoarding as is exhibited by the magpie or by the dog who is continually burying bones for future use in spite of the fact that he has never known any interference with his regular supply of food.

An especially striking example of the hoarding instinct is presented by the bee. The behaviour of the domesticated insect suggests that this instinct is ungraded in so far as the size of the hoard is concerned, or, more correctly, that the strength of the impulse to hoard stands in no relation to the size of the hoard already accumulated. Moreover, the enormous accumulations of honey found in the nests of bees in the wild state suggest that this character is not merely a result of the abnormal and artificial circumstances to which the domesticated varieties have been exposed.

Examples of the action of an instinct of acquisition of a very different kind are presented by the behaviour of birds in relation to territory, of which so interesting an account has recently been given by Mr. Eliot Howard.[1] Mr. Howard finds that the earliest phase in the process of mating and breeding in many birds is the assumption of a special attitude on the part of the individual male bird. The male takes up a position from which he adopts an aggressive attitude towards any other male of the species which ventures within a region surrounding this position. The size of the territory over which individual ownership is thus assumed varies with different species and under different conditions, but is usually a half to several acres in extent. When the male bird has become master of his territory he is sought out by the female, and mating and breeding take place. In the case of migrating species this acquisition of what we cannot but regard as rights of individual ownership over a territory takes place immediately after migration, but in the case of resident species the change from the previous communal life to the acquisition of individual rights over territory seems to depend largely on temperature, and with return to a lower temperature male birds which have acquired individual territories may return to communal life. When they so return, no trace can be observed of the aggressive attitude towards other males which accompanies the territorial ownership. Another striking feature of the behaviour of these birds is that the aggressive attitude only shows itself within the individual territory, and disappears as soon as a male has been chased out of the territory into which he has intruded.

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[1] *Territory in Bird Life*, London, 1920.

As Mr. Howard shows, this process of acquiring individual rights over a territory is clearly instinctive. Its special interest is not only that it illustrates very definitely the existence of an instinct of acquisition, but that this instinctive attitude towards ownership only shows itself in connection with the parental function, or as a stage in the chain of proceedings in which the parental instinct finds expression. So far as we can speak of an instinct of acquisition in this case it is not independent, but is closely bound up with the sexual and parental instincts by means of which the race is perpetuated.

I must be content with these examples of the existence of an instinct of acquisition in animals other than Man. In the cases I have considered the instinct acts directly in the interests of the individual, though the acquisition of territory by the individual male bird is ultimately in the interests of the race. I have now to consider how the individual instinct of animals is modified in the interests of the community to which the individual belongs. This is shown in its most complete form in the bee, where the acquisition of honey has become the specialised function of only certain individuals of the community, who perform this function altogether in the interests of the community, and get from it, as individuals, no greater advantage than other members of the community whose instinct of acquisition has become either atrophied or suppressed.

There can be little doubt that at one stage in the racial history of the bee the storing of honey must have depended upon an instinct acting in the interest of the individual, and, if this be so, the bee shows us how the individual instinct of acquisition can be so modified in connection with the gregarious life as to act completely in the interest of the community. It is not unnatural that this modification should appear so clearly in an animal which presents perhaps in a higher degree than any other creature the process of adaptation to the gregarious life. In the bee this process of modification has gone so far that it is not possible to obtain evidence concerning the nature of the process by which the modification has come about. Let us inquire whether it is possible to find such evidence in the other chief case I have cited. One of the main interests of the behaviour of many birds in relation to territory is that the instinctive acquisition of territorial rights by the individual only takes place at one period of the year, and in connection with the sexual and parental functions. During the rest of the year the bird is gregarious and sociable, and the instinct of acquisition, in so far as it reveals itself by the aggressive behaviour of the individual in relation to territory, shows no sign of its presence.

We have here an alternation of behaviour and of what we might call personality of the same order, though less pronounced, as is shown by the amphibian which takes to the aquatic life as part of the process of breeding. In the case of the newt, the change in passing from one state to another is far greater than in the bird, and it is accompanied by definite physical and physiological changes, but the difference between bird and amphibian is probably only one of degree. In the bird the chief observable change is in behaviour. During the winter it is eminently sociable; it is only in the spring, and as part of the process of mating and breeding, that it shows hostility towards others of its species. As Howard puts it, " Whereas the outstanding feature of bird life in the winter is sociability, that of the spring is hostility." [1] Moreover, the change from one state to the other is directly dependent upon temperature; a male bird which with the onset of spring weather has assumed individual rights over territory, with the accompanying hostility, will again become peaceful and sociable if there is a return of cold weather. Whereas any tendencies to individual acquisition which the bee may once have possessed have been wholly subdued so as to adapt this insect to its gregarious life, the bird, though gregarious through the greater part of the year, shows at one season the presence of an instinct of acquisition which acts immediately in the interest of the race. While the bee, as the most highly socialised of creatures, shows complete socialisation of an instinct which may once have acted solely in the interest of the individual, the bird has its instinct of acquisition less completely socialised, and still exhibits the activity of this instinct at one season of the year and in connection with one of its vital activities.

The annual cycle of the life of these birds suggests that the individual instinct of acquisition with its accompanying aggressive attitude has been suppressed in the interests of communal life, but that the bird differs from the bee in that the suppression is not complete. It is relaxed in the breeding season when the acquisitive attitude again comes to the surface. Its reappearance is definitely connected with the parental instinct, having as its biological motive the needs for the acquisition of a territory upon which sufficient food can be obtained to feed the young.

The Instinct of Acquisition in man.—In dealing with animals other than Man I have first given examples of the crude instinct and then tried to show how in certain cases this crude instinct acting in the interest of the individual has been suppressed or modified in response to needs arising out of the gregarious life. It now remains to attempt a similar task for Man himself.

The most striking evidence in favour of the instinct of acquisition as part of Man's mental endowment is derived from pathology. A leading feature of many psychoses is an impulse to collect, apparently with little, if any, regard for the nature or value of the objects collected, though it must always be remembered that undiscovered beliefs or sentiments present in the mind of the disordered person may give the collected objects a value as real to him as that of the ordinary possessions of the normal man.

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[1] *Loc. cit.* Page 231.

Another pathological state which points in the same direction is the impulse to acquire which is known as kleptomania. This term probably denotes several different states or processes, but there seems to be little doubt that prominent among these is one in which a person has an uncontrollable impulse to acquire anything of value which comes within the purview of his senses. The various social factors through which such impulses are normally controlled are wholly insufficient to prevent these impulses from going on to action. The frequent tendency for persons to become misers as part of the regression of senility is another fact pointing in the same direction.

The validity of this evidence depends on acceptance of the view that the psychoses, psycho-neuroses, and other pathological states are examples of regression or reversion to early stages in the development either of the individual or the race. The strength of the impulse to collect in childhood offers confirmation of a different kind. Not infrequently this impulse to collect with little regard to the value of the objects collected continues into adult life, but in most cases only such collections are continued as stand in a definite relation to other social activities. The boy who collects butterflies, birds' eggs and postage stamps indiscriminately will collect certain kinds of insects if he becomes an entomologist, but will collect books if he devotes his life to historical or literary studies.

There is thus a certain amount of evidence derived, partly from behaviour in youth, partly from the regressions of disease or age, pointing to the existence in Man of a crude undiscriminating instinct of acquisition acting solely in the interests of the individual.

In our own individualistic, or, as it has been called, "acquisitive" society, acquisition in the interest of the individual is a prominent part of the existing social order, but it is a question how far this is due to the action of instinctive tendencies and how far it is the outcome of tradition and example. The fact that such a state as kleptomania and the behaviour of the miser are regarded as pathological or anti-social shows that any crude instinct of acquisition which Man possesses has been brought under control as the result of social influences, and the question before us is how far those cases of acquisition by the individual which are a normal part of our social order can be held to have an instinctive basis.

If we are to use the term instinct in the case of man in the same sense as it is used when dealing with other animals, we shall only be justified in regarding that behaviour as instinctive which is common to mankind in general. It is theoretically possible that different branches of mankind may have been separated from one another for a sufficiently long period of time, and have in that time undergone development on sufficiently different lines, to have become endowed with different instincts, but it is far more likely that the instinctive equipment of all varieties of the human species is alike, and that any differences they may show in relation to such a process as acquisition are due to different degrees in which a common instinct has suffered modification in the individual as the result of tradition and social environment.

I propose now to examine some examples of behaviour in relation to acquisition from people of a culture widely different from our own in order to obtain some facts bearing on the subject before us. I shall here confine my attention to the region of Melanesia, which has been the seat of my own inquiries.

Throughout Melanesia we find a peculiar blend of individualistic and communistic behaviour in relation to property. In respect of all kinds of property the whole aspect of individual ownership is far less definite than among ourselves. Though certain objects, such as weapons or utensils which a man has himself made, are regarded by general consent as his individual property, there is far more common use of such individually-owned articles than is customary in our own society. With other objects, especially those made by the united efforts of the community, the concept of individual ownership is unknown in many parts of Melanesia. The canoe, for instance, is regarded as the common possession of a social group, it may be a clan or a group of kinsfolk, and there is a striking absence of such disputes concerning the right of use as we might expect from the example of our own individualistic society.

The object in which common ownership is perhaps most universal and most definite is land, and it forms a subject especially suitable for the study of the problem to what extent ownership in human society can be held to have its basis in an instinct of acquisition.

Everywhere in Melanesia, so far as our information goes, the ownership of uncleared land is primarily vested in the tribe. Any member of the tribe has the right to clear a plot for the use of himself, his relatives, and descendants. Land which has been already cleared is held in general to belong to a social group within the tribe. Thus in Eddystone Island, in the Western Solomons, ownership is vested in a group of relatives called *taviti*, and any member of the *taviti* can use the land of the group or take produce from the land cultivated by any other of its members. A similar state of affairs holds good for the group of kin called *vantimbül* in the island of Ambrim, in the New Hebrides. In both places there are rules that certain kin must ask for permission before they can take produce from land cultivated by other members of their group, while in the case of other kin this is not necessary, the difference depending mainly on the nearness of relationship. In all cases, however, the feature which strikes the European observer is the absence of the disputes which would be inevitable if such a state of affairs existed among ourselves, assuming, of course, that our existing sentiments remained what they now are.

A striking example of the difference of attitude towards common and individual ownership of land was given to me in the island of Mota, in the Banks group.[1] Here it was the custom for a man who had cleared a piece of land to mark out an area for the use of each of his children. I worked out the history of a plot of land which had been divided up in this way several generations ago. After a plot had been assigned to each child, the rest was left for the common use of all. Each of the individual plots had passed from one person to another in course of time and each was still regarded as an individual possession, but I was told that disputes concerning the ownership and right to use the produce of these individually-owned gardens were frequent, while there was never any quarrelling about the use of that part of the original plot which had been left for the common use of the descendants of the original clearer.

I cannot refrain here from pointing out a striking resemblance between this Melanesian example of ownership of land and the nature of the acquisition of territory by birds; of which Howard has given us so striking an account. This observer finds that early in the year a flock of birds may be observed living a common life on an area of land. As spring advances, individual males leave the flock one after another and acquire individual territories, as already described, but after most of the males have thus acquired individual territories, part of the original area still continues to be occupied by the rest of the flock, including those males which for one reason or another have failed to acquire territories. The striking feature of resemblance with the Melanesian example of land-tenure is that the aggressive attitude only arises in connection with the territories which have been acquired by individuals, while there is practically no fighting on that part of the original area which has remained common to the flock. A further point of resemblance may be noted. The individual aquisition of territory in the case of the bird society is definitely connected with the parental function, while in the Banks Islands the original clearer of the land marked out the individual plots for his children. Here also individual ownership, in so far as it exists, seems to be connected with the parental function.

I do not wish to lay too much stress upon these striking resemblances between the social behaviour of man and bird in relation to the individual ownership of land, though I think we ought to ponder the kind of conclusions which an avian sociologist would be likely to reach if he were to investigate this aspect of human society. It is impossible, however, to ignore the fact that in this Melanesian case of human behaviour we have just such an example of the association of communal ownership with peace and of individual ownership with strife as is presented by bird society. Moreover, I do not think that in studying the human example we can ignore the principles of inquiry which we follow when considering the social behaviour of other living creatures.

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[1] *The History of Melanesian Society*, Cambridge, 1914, vol. i., p. 55.

I have suggested that the behaviour of many birds during the breeding season depends on the revival at this period of the year of an instinct of acquisition in the interest of the individual which during the rest of the year has been suppressed or greatly modified by needs arising out of the gregarious life. Except in the breeding season the individual instinct of acquisition does not show itself, but has suffered the inhibition or suppression which instincts acting in the interests of the individual are liable to undergo during the process of adaptation to the gregarious life. The facts of development and regression in Man point to acquisition in the interest of the individual as the primary and more deeply-seated process which in the bird and the Melanesian has undergone partial suppression in the interest of social needs. In the case of the bird we are accustomed to regard the modification in the interest of the community as being also instinctive, as having taken place through the activity of a gregarious or herd instinct. In the case of Man, it would be dangerous at once to draw the same conclusion, especially when we find that, if Man's attitude towards property is determined by an instinct of acquisition, the instinct of different peoples has undergone in such very different degrees the process of modification in response to social needs. If we suppose that the attitude towards property has an instinctive basis, we are driven into the position that the crude individual instinct is far more powerful among ourselves than among the Melanesians, and that it has in far less measure been modified in response to the needs of social life.

At the present time it is the fashion to call upon herd-instinct for the explanation of many manifestations of the social activity of mankind, usually without any clear statement concerning what is meant by instinct. One of the chief problems awaiting the consideration of the sociologist is how far such socialisation of an individual instinct as is shown by the attitude of bird and Melanesian towards territory is to be explained by the action of a gregarious instinct and how far it is due to the influence of social tradition and example. Both Melanesian and bird show that an instinct of acquisition in the interest of the individual can be so greatly modified in response to gregarious needs that it practically disappears or only appears under special circumstances. If this modification or disappearance needs the direct action of a gregarious instinct, there are no great hopes that the highly individualistic attitude of our own society towards property can suffer speedy modification. If, on the other hand, such modification or suppression can take place through the agency of social tradition and example, those who advocate a change in our social attitude towards property can be much more hopeful. The fact that two creatures so like one another as Melanesian and European differ so greatly in their attitude towards individual ownership suggests that, in so far as they possess in common an individual instinct of acquisition, this has been modified by social traditions rather than by the direct activity of a gregarious instinct, but far more exact thought is needed about the part which instinctive factors take in social development.

The problems suggested by this paper are not going to be settled by the kind of loose thinking and loose writing about the herd-instinct which are now so prevalent. Two lines of inquiry are especially needed. We need in the first place exact thinking about the part taken by instinctive factors in the action of social tradition and, in the second place, we need a vastly larger store of facts concerning the attitude towards acquisition and ownership of different human societies on the one hand, and of different animal societies on the other. It is an easy course to reject the value of such comparative study in its relation to our own social problems by pointing out that the bird has evolved on lines widely different from our own, and that the Melanesian is a palpable failure in the social struggle for existence. Such arguments may have a certain amount of force so long as we treat the problem on purely historical lines and fail to bring psychological considerations to bear on the problem. But the rejection of such evidence is no longer possible when we turn to psychology for guidance, and seek for the general psychological laws which have guided the evolution of societies. Certainly such evidence cannot be rejected when we are dealing with the part which instinct has taken in this guidance.

It is, of course, impossible to attempt the treatment of such problems as I have raised on such an occasion as this. I must be content to suggest certain lines of study in relation to the instinct of acquisition which cannot be ignored if we are to understand the essential nature of some of our most important political and economic problems.

DETERMINISM IN RELATION TO PSYCHO-ANALYSIS

By W. R. Bousfield, K.C., F.R.S.,
and
Paul Bousfield, M.R.C.S., L.R.C.P.

THE practice of psycho-analysis in this country has recently increased owing perhaps in some measure to the large number of "shell-shock" cases which have been successfully dealt with in this way, and it is chiefly applied to the study and treatment of a variety of psycho-neuroses—or mental and nervous ailments, as we will call them (with the desire to avoid here, as elsewhere, technical terms not familiar to everyone). Briefly, the method consists in laying bare motives and tendencies which are unknown to the patient and in digging up these hidden springs of action from the unconscious mind by the use of trains of associations which penetrate further and further into the background of the mind until their sources are revealed and suitable methods of dealing with them found. Obviously the character of the patient as well as his mental condition may be greatly modified by the treatment applied, and the effect on character may be as important as the effect on mental equilibrium. Furthermore, the activities of psycho-analysts extend beyond the field of psycho-pathology, and the conclusions at which they have arrived have special importance in the field of education where they deal with the deepest problems of character formation. Since character formation is a subject of the highest import, both for the individual and for the race, it is clearly desirable that the theory and practice of psycho-analysis should be based upon a view of human life and conduct which should be in conformity with the highest standards.

It is not proposed to enter upon a general discussion of the methods of psycho-analysis, and our criticisms will be limited to the school of which Freud is the high priest, which bases its theory on a purely materialistic view of human nature.

It is not a little remarkable that this school should declare itself materialistic when in the realm of physics scientists are finding room for a spiritual as well as a material side to the universe. We use the term "spiritual" in contrast to the word "material" to denote the intelligence and power which in man may survive the dissolution of the material body and in nature may be the moulding agency of matter. Science now reveals to us that the whole material universe is built up from two simple components, protons and electrons, the positive and negative units of electricity, and we are able to envisage an original nebula at such a high temperature that these two kinds of primary matter had not coalesced into atoms or molecules. The notion that the world and its inhabitants have been evolved from such a nebula without any intelligent moulding agency has become scientifically unthinkable. Furthermore, we now know that atoms and molecules are composed of systems of electrons arranged about a nucleus with spaces between them which are vast compared with the size of the component electrons. The notion of an ethereal or spiritual body which may interpenetrate the material body and survive as the vehicle of memory, intellect, consciousness, and character is no longer unscientific. But the strict [1] Freudian school, in the exuberance of their psychology, have disposed of spirit and find mind a mere function of matter. According to this school, not only is a Divine will non-existent, but the human will is a figment of the imagination. It teaches that when a man with certain moral ideals struggles against opposing natural instincts, and comes out, as may be, either victor or vanquished, the result is a foregone conclusion. It postulates that in this conflict conduct is governed not by the will of the individual but by a rigid determinism. It alleges that there is no such thing as free will, that the struggle between good and evil of which the conscious mind takes note is a mere delusion, and that the result of such struggle is in reality predetermined before the apparent struggle begins. It professes to account for the " superstitions " of mankind, and Freud in the course of a discussion on paranoia observes: "We venture to explain in this way the myths of . . . God, of good and evil, of immortality and the like, that is to transform metaphysics into metapsychology. The gap between the paranoiac's displacement and that of superstition is narrower than appears at first sight."

It is all very well for the mere philosopher to hold such views, and they do not worry the mind of the normal man, unless he adopts this attitude as an excuse for vices which he cannot control (as to which more anon). He resolves the question by an appeal to his own consciousness, and when the occasion arises he engages in those mental or spiritual struggles by which character is built up. Nor would the materialism of an engineer or of a lawyer, or even of a surgeon, trouble us. But when the psycho-analyst who is going to treat a diseased mind bases his treatment and his technique upon the theory that the patient has no real power of choice between good and evil, and insists that this is a mere illusion, we are entitled to consider the grounds on which he claims to have arrived at the negation of free will as a scientific fact.

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[1] We use the words "*strict* Freudian" because there are many who, while accepting on the whole Freud's observations in regard to psychic evolution and character formation, do not accept his purely material and deterministic ideas.

In this criticism of the Freudian school of psycho-analysts we desire to challenge their insistence upon this doctrine of complete "determinism," without questioning the theory that determinism does play a very large part in conduct, and without touching upon other features of their system of analysis.

There are certain principles of psychology which Freud and his followers have co-ordinated and extended and have made the foundation of their technique which receive general acceptance. These principles are quite independent of the use which the Freudian school has made of them. Let us examine these principles which have received general assent, which we will state in our own way in language as free as may be from technicalities.

Psychologists appear to be agreed that many of our conscious acts and thoughts which are independent of a direct exercise of the will are governed by what may be called determinants, the seat of which is chiefly in the unconscious mind and which operate independently of consciousness. Some of these determinants are positive—that is, they tend directly to induce particular modes of thought or action; others are negative, and tend to inhibit certain modes of thought or action. The psycho-analyst deals largely with the negative class of determinants, the foundation of which is an unconscious impulse to keep back disagreeable or painful ideas and prevent them from rising into the stratum of consciousness. The positive determinants, which include habits and automatic tendencies, do not appear to be so deeply seated in the unconscious mind, and are more readily recognised by the conscious mind. But the inhibitive determinants are more securely hidden, and it is the business of the psycho-analyst to bring these to the surface so that they may be recognised by the physician, and in many cases by the patient, and suitable treatment applied. This is accomplished by a practical technique which is founded on trains of associations by which the unconscious mind of the patient is gradually more deeply penetrated until the hidden determinant is brought to light.

Numerous illustrations of the operation of these principles are given by writers on psycho-analysis, who are chiefly concerned with the inhibitive determinants. Thus the forgetting of a name or a word may often be traced by analysis of a simple kind to the fact that the name or the word, if remembered, would bring into the conscious mind some associated idea of a disagreeable character which the unconscious mind keeps back. The unconscious mind, or some function of it, stands as sentinel or "censor" over this disagreeable idea, and not only keeps it back, but keeps back other associated ideas, which if brought into consciousness would call up the disagreeable idea. Hence the forgetting of the idea for which the conscious mind may be groping, because it is inhibited by the unconscious mind as being associated with disagreeable ideas. The above reasoning is applied not only to *lapsus* *memoriae*, but also to *lapsus linguae* and *lapsus calami*, to mistakes in reading and writing, and to errors of various kinds which are apparently unintentional but which may be traced to the inhibiting effect of the unconscious mind in keeping back some disagreeable association.

Freud gives many illustrations of the application of various determinants to chance actions and to erroneously-carried-out actions, and a perusal of a number of these illustrations leads to the conclusion that a very large number of our thoughts and actions are in fact determined by impulses which come from the unconscious mind without recognition in consciousness.

So far, so good. But psycho-analysts of the strict Freudian school go further, and insist upon the generalisation that *all* our thoughts and actions are determined in this way, that there is no such thing as free will, that when a man thinks he makes a free choice between good and evil, for instance, his freedom of choice is an illusion, and that his thought or action is really no more than the automatic resultant of impulses some of which are conscious and some unconscious, the action of which is beyond his control. What, then, are the grounds on which they claim to put this forward in the name of science, as a fact scientifically proved?

As Freud is the leader of the school which is being criticised we shall consider the sort of proof on which he bases his views. A perusal of literature relating to the subject indicates that his followers accept his views without much criticism of their own. Freud is hailed by his followers as "the Darwin of the mind," who is said to have given "for the first time a purely naturalistic theory of mental evolution, one free from any admixture of metaphysical, ethical, or supernatural mysticism." Jung, who has ventured to question some of Freud's conclusions, is said to have abandoned *the* principles of psycho-analysis "under the guise of pretended development." Lesser lights who venture into the field are met with such replies as: "This is contrary to Freud, and therefore it must be wrong"; or: "This person cannot know much about the subject, otherwise," etc. That such an attitude is utterly unscientific, and retards the evolution of the science of psychology, is quite obvious to a person who is not overweighted by the Freudian Complex. True science advances by the differences of opinion of its leaders, and when the views of any one of them are regarded as a sort of *ex cathedra* utterance which cannot be questioned the advance of science is retarded. Fortunately in the realm of physical science this is not so. The recent marvellous advances in the science of the molecule, the atom, and the electron have been developed by leaders who have differed very much *inter se*, but their very differences have been aids to progress. No man in his time was more worthy to be looked upon as infallible in his sphere than Lord Kelvin. Yet he regarded the theory of the ionisation of salt solution as being impossible. To him it was unthinkable that an atom of sodium (for instance) should exist in water apart from the corresponding atom of chlorine so as to function as two molecules instead of one. Yet fortunately the weight of his opinion did not deter lesser lights from accepting the theory of ionisation as a working hypothesis, until it was finally shown that an atom of sodium in combination with some few water molecules might be under certain circumstances a more stable combination than the combination Na Cl.

Still more should a psycho-analyst be on his guard against a personal bias of this kind, for he is engaged in analysing those very psychic phenomena which should teach him how an unconscious bias may inhibit the outcome of truth.

It is therefore particularly appropriate to criticise the work of Freud himself rather than that of his enthusiastic followers, and for this purpose we may take his *Psycho-Pathology of Every-day Life*, in which everything leads up to the final chapter on Determinism. Freud gives a large number of cases, many of which are undoubted instances of determinism, though some of them are very slender if regarded as more than possible illustrations. But a careful examination of these cases shows that *there is not one of them in which the active will could possibly come in as a determinant.* We may illustrate the matter by Freud's argument based on chance numbers, to which he attaches special importance. He says: "I know of no other individual observation which would so readily demonstrate the existence of highly organised thinking processes of which consciousness has no knowledge." Freud asserts that it is impossible to think of a number of one's own free will, and that what appear to be chance numbers given at random are the resultant of determinants which may be explored by a suitable analysis. He illustrates this by analysing a chance expression of his own to the effect that he would not make any further changes in the proof-sheets of a certain book, "even if it contained 2,467 mistakes." On searching his mind to find whence this number had come, he connects it with a thought of a certain person which brings to his mind that he had celebrated his 24th birthday in the military prison. His age was now 43, and adding 24 to 43 we get 67. In these considerations he finds the unconscious origin of the number 2,467. Other instances of chance numbers unintentionally derived from the unconscious are given.

Let us give another illustration of a chance number from the experience of one of the present writers—the number 4,687. On thinking it over, he finds that the sum of these numbers is 25, which is the age at which he was married. Further, it was at the age of 46 that he fought his sixth Parliamentary election contest. An hour before fixing on this number he had been reading a *Life of Sir W. Crookes*, in which it was stated that he passed away in his 87th year. This is just the kind of causation upon which Freud relies for the unconscious genesis of the number. But in this instance the chance number was arrived at by taking a circle the size of a shilling with all the various numerals written within it, and blindly pricking at it with the point of a pencil and taking the four numerals which the pencil-point indicated. The author's mentality had not entered into this chance number at all. But how easy to attribute it to the determinism of the unconscious mind!

But we will not comment further on the slenderness of some of Freud's illustrations, except to observe that it is not with such materials that one can hope to establish that a man has no real choice between good and evil. Many of Freud's illustrations do indeed establish that determinism operates in matters where the will is dormant, but in not one of those illustrations could the active will possibly be a factor. They only show that the unconscious mind may catch the will napping, and that in the absence of an active exercise of the will these hidden determinants do determine thought and action.

But let us look at the matter from another angle and apply the very principle upon which our psychologists insist as being so potent a factor. In matters of theory, opinion, and belief they specially insist on the potency of determinism. And it may be conceded that if there is one thing more than another in which determinism has full play it is in matters of opinion and belief which cannot be resolved by experiment or logic. Where we are concerned with voluntary actions there may be a conflict between the conscious will or desire and the determinant hidden in the unconscious mind, which may eventuate in either the unconscious or the conscious motives getting the mastery. But in the case of opinions and beliefs the will is often impotent. We may imagine the case of a Protestant upon the rack who is asked by the inquisitor if he believes in transubstantiation. If he is dishonest he may say, "I do, I do." But if he is honest he may say, "I wish I could, but I can't." The will to believe is often powerless. The actual belief or opinion is most strongly, if not entirely, influenced by numberless determinants in the unconscious mind which are fixed by early training or heredity or prejudices or what not, forming what is called the "mental constellation" of the person. If the matter were one which could be resolved logically or experimentally the conscious mind might negative the unconscious determinants. But in matters which cannot be so resolved the unconscious determinants dictate the outcome.

It is obvious that when we come to opinion or beliefs such as that

Free-will is an illusion ;
There is no real moral responsibility for acts ;
There are no divine rules for conduct ;
There is no God ;
There is no future life ;
Mind is a mere function of matter ;

and such other conclusions as materialism brings in its train, the psychologist must keep his eyes open. But in fact the leaders of the school of psychology which is under criticism have used their principles of psychology to defend the materialistic attitude, without seeing that their arguments are more potent when reversed. Let us turn their arguments round.

Normally in youth and with most people in more mature age there is a conflict between their appetites and desires for pleasure and their notions of right and wrong. It is not material for our purpose to inquire how these notions of right and wrong are impressed, but it is clear that a normal education in this country is calculated to implant ideas of a moral law. Of course the object of education is to enlist the will on the side of right, so that the notion of right may triumph as far as may be over the desire for pleasure and so lead to the development of character. For the sake of argument let us leave out the influence of free will, and consider only the determinants implanted by education, such as:

Fear of consequences.
Desire to please others.
Hopes of reward.
Force of public (or public school) opinion.

Let us now consider the psychical history of a person who pursues the downward path. Vice is at first resisted, though unsuccessfully. There is a feeling of law broken, of possible penalties incurred. There is possibly an ineffectual resolve against repetition. But opportunities recur and the desire is not to be resisted. Each time the struggle is renewed the counter-effort is feebler. The uneasiness, the sense of a broken law becomes feebler, until it disappears from the conscious mind. But it leaves behind it in the unconscious mind a dislike for the idea of a moral law or moral responsibility. Persistence in a course of evil, at first resisted, then condoned, then habitual and without conflict, has made the thought of moral law or moral responsibility so disagreeable and repellent that the unconscious mind sets up a barrier against permitting such thoughts to emerge into consciousness. It should be noted that such an inhibition is recognised by psychologists as being of great potency, and according to them extends not only to the original ideas but to associated ideas. Hence with the repulsive ideas of moral law or moral responsibility there become involved associated ideas such as the existence of God, of any sanctions which may follow moral depravity, or of any future life, and so on, all of which become part of the inhibited group of ideas.

Probably during the history sketched above, ideas as to free will, materialism, etc., have never troubled the mind of the patient. But such an one may be a man of no mean intellect, and may become a student of philosophy or science, or even of psychology, and may come to tackle from the intellectual standpoint the ideas of free will and determinism, the existence of God and a future life. But in accord with the principles above stated, his intellect is badly handicapped. Experiment and logic cannot resolve such questions. What, then, according to the above described principles of psychology, will be the result ? The ideas of moral law and moral responsibility which became disagreeable to him in his early struggles and defeats are inhibited by his unconscious mind, which will not tolerate the emergence of such ideas and their associations into his conscious mind, and his opinions and beliefs are necessarily materialistic.

Of course a man of intellect who is a student of psychology is not content merely to say, " I believe that determinism is all-embracing and there is no such thing as free-will." He will attempt to support his views by evidence, argument and illustration. But the psychologist himself tells us that in such matters determinism is most potent and that it is shown " in the minimum of evidence often necessary to secure the acceptance of an idea that is in harmony with the existing mental constellations or to reject one that is incompatible with these." So that if the " existing mental constellation " of the psychologist is such as to inhibit the group of ideas in question and favour the materialistic view of life, we cannot be surprised at the paucity of the evidence or the feebleness of the logic with which he supports his views.

An illustration of the way in which such a mental constellation leads to the easy rejection of an idea associated with the inhibited group may be found in the slender way in which Freud deals with the subject of telepathy. Here is a subject which has been investigated experimentally by many scientists in such a manner as to afford proof of the phenomenon to anyone who is not afflicted with the materialistic complex. It is surely a subject so closely related to psychology that a psychologist should endeavour to satisfy himself from the experimental standpoint and not be content to let his views be governed by an unconscious bias. But this is how Freud deals parenthetically, in an off-hand way, with the subject. He relates a case in which B., seated with his wife at dinner in a restaurant, remarks, " I wonder how Dr. R. is doing in Pittsburg." B.'s wife said, " Why, that is exactly what I have been thinking for the last few seconds." Here was apparent telepathy. It turned out that a stranger something like Dr. R. had passed through the restaurant without being consciously noticed by either B. or his wife. This then was the probable explanation of the simultaneous thoughts, as to which B. says, " I venture to say that such simple mechanisms are at the bottom of the most complicated telepathy manifestations." Freud approved this and observes that this incident " throws some light on the nature of telepathy " ! ! Such is, indeed, an illustration of the slender evidence which a person afflicted with the materialistic complex will accept in the place of enquiry and experiment. The same unconscious bias leads one of Freud's chief exponents in England to the opinion that "a belief in telepathy" is a "psychological derivative of the flatus complex." Thus in the twentieth century we are carried back to the dark ages in which speculations and opinions were accepted instead of experiment and research. May we not rather say that the group of materialistic ideas which are accepted by the strict Freudian school are the psychological derivatives of the Freudian complex ?

If Freud possess, as he obviously does, the "materialistic complex," the strict Freudian school in England is probably similarly fettered, for according to them (and other schools of psycho-analysis also) the analyst cannot bring to light in the analysed, complexes which are hidden from himself. These strict followers of Freud have no doubt a definite fixation on him or one of his followers and possess a Freudian complex which is by no means a negligible one.

In conclusion it may be observed that the materialistic views of the Freudian school of psycho-analysts lead to the omission from their treatment of a side which deserves recognition. There is a *vis medicatrix naturæ* upon which the physician relies. But it may be there are in nature spiritual forces as well as material forces. When we are concerned with the healing of the mind, science and religion cannot always be kept in separate water-tight compartments. As an instance, the success of the Salvation Army in dealing with cases of acute dipsomania is well known. A letter to General Booth to ask if he could give any idea of the number of habitual drunkards whom the Salvation Army have permanently reclaimed, brought the reply that they had enquired into this matter some years ago and then estimated that the number was from forty-four to forty-five thousand.

Something in the methods of the Salvation Army has a powerful psycho-therapeutic value. There is a definite psycho-therapeutic success that may perhaps be partly due to two causes. In the first place dipsomania is usually accompanied by, and often induced by, other moral lesions. The Salvation Army attacks the whole group and endeavours to give a completely new spiritual orientation to the patient. Under such circumstances appropriate auto-suggestion will be cheerfully and regularly practised by the patient, and will have greater potency than mere external suggestions, or the resolutions of an enfeebled will. In the second place the methods of the Salvation Army provide a new and invigorating psychic atmosphere. Fresh air and sunshine give new supplies of energy to a debilitated physical constitution. And there is no scientific reason why energy from an unseen psychic source may not be made available to energise an enfeebled will. These psycho-therapeutic effects may depend largely on the new spiritual orientation which is brought about.

It is essential, of course, not to dogmatise on such a subject as this, but it is equally essential that we should keep our minds open to recognise the possibility that the facts we have mentioned above may have explanations not attainable by psycho-analysis pure and simple, for such could not, of course, discover material which lies outside the mind altogether. A materialist psychology denies the possibility of these things. But less dogmatic psychologists may be capable of incorporating into the science and practice of psycho-therapy some of these elements of which experience has shown the potency. We cannot, however, look to the strict Freudian school for this. They shut the door and bar it against any such help by teaching a psychology which explains away "the myths . . . of God, of good and evil, of immortality and the like."

INSTINCT OR REASON ?

The Comparative Method is as valuable in Psychology as in the other biological sciences. Unfortunately, not many psychologists enjoy the opportunity of studying animal life at close quarters or possess the training necessary for doing so successfully. Relevant data are therefore somewhat meagre and the first-hand observations of so experienced a naturalist as Captain Pike are likely to be of great value.—EDITOR.

BY CAPTAIN OLIVER PIKE, F.Z.S., F.R.P.S.

IN a life devoted to the study of Nature I have seen many incidents which have made me ask myself the question : Is it Instinct or Reason ?

Has a caterpillar any intelligence ? It looks to be one of the last creatures that would be capable of thinking out a problem. Yet some caterpillars of the Red Admiral butterfly behave in a very remarkable manner when changing into the chrysalis state.

When the caterpillar has finished feeding, it hangs motionless for about twelve hours, and as it is now helpless, and at the mercy of any birds or other animals, it protects itself in a wonderful way. It crawls up the nettle stem until it reaches to within about four inches of the top. Now it bites through the stem for about two-thirds of the way, so that the top falls over. When this feat has been performed, it crawls underneath the canopy of leaves, fixes itself in a secure position, and is almost invisible. If this is done by instinct, why do not *all* the caterpillars of this species protect themselves in this way ? I have watched a colony of them, and have noticed that it is only the few that behave like this.

The Honey Bee is one of the highest developed of all insects. Is it able to reason ? Is there in that little head, which contains one of the most perfect brains next to that of man, any power of intellect ? Do bees always work like a machine, or can they adapt themselves to any circumstances ? We are told that bees never have progressed. Their combs ten thousand years ago were as perfect as they are to-day. They gathered honey, pollen, propolis and water then. Others ask us to show them a single instance of a bee showing signs of progress, by using clay or mortar, for wax or propolis. This is a little more than we should expect of such workers, for the simple reason that the materials they do work with are the most perfect for their special work that it would be possible to find. But the Italian bee, when it has a large piece to cement over with propolis or glue, does collect grains of sand, and other minute material, to mix with the resinous substance. Is this progress, or have they always done this ? Give bees artificial pollen in the early spring before the flowers bloom, in the form of pea-flour, and they will soon take to this, and carry in great quantities. Is this progress ? Place on or near a hive a sticky substance, be it paint, glue or other material, and they will take this into their hive and use it instead of propolis.

There are, it seems, some bees either too old or too indolent to gather honey in the ordinary way, and one or two of these will manage somehow to find their way into invitingly luxurious hives, take all the honey they can, and then return to their rightful, but poorer, home. I once witnessed an extremely artful dodge by one of these robber bees. The bee in question tried several times to enter a strange hive, but each time it ventured near the entrance, one or two sentries pounced out and drove it away. Not to be conquered, however, this bee made several more attempts to get in, but on each occasion was driven off. For a short time the would-be intruder rested on the alighting board of the hive, then slowly crawled towards the entrance again, and by degrees it was able to place itself in such a position that a great many of the returning bees, which always hurry fast into the hive, had to settle on its back, or to pass over it. This robber bee was thus mixing with the home-coming bees so that it should receive a certain amount of their scent, for it seems that bees recognise one another by scent. However, whether this was so or not, I cannot tell, but this I do know, that the next time this bee tried to enter the hive, the ever vigilant sentries seemed undecided whether to turn it out or let it pass. One sentry examined the intruder; another walked round the robber; while others seemed inclined to handle the stranger roughly. This was the wished-for opportunity. Without a moment's hesitation the robber put out its tongue and offered the sentries a tiny drop of honey. This was eagerly licked up, and immediately put an end to any doubt the sentries had, and while there was honey offered they treated the thief as a friend. However, when it again tried to pass in they still refused to let it do so. The bribe was again offered, and this time successfully, for the little robber now walked quickly forward and soon found out where the best honey was stored. Was this reason or instinct ?

Of all the most remarkable things that I have read of, or witnessed, which go to prove that bees can, in a way, reason, the following is, I venture to think, the most conclusive.

I was standing in a room where I store my honey. There were one or two small crevices through which bees managed to effect an entrance, and there were about twenty flying around or attempting to leave the room with the load of stores they had taken from the open tins of honey.

First I must mention that if a lump of bees-wax was placed in or near a hive, the bees would not touch it. Wax is introduced into the hive by the modern bee-keeper, but in the form of sheets with the base of the cells imprinted on each, and the bees add to this with wax of their own production.

On the window-ledge of my room there were six tablets of bees-wax. A bee laden with honey was vainly trying to beat its way through the glass, and at last it settled on one of the tablets of wax. For a few moments it was motionless, then it slowly walked over what to the little insect must have seemed a hillock of wax, and this was carefully examined. There was nothing strange in this, but what followed certainly showed great powers of reason for so small a creature. Here it found itself in a land of plenty, honey and wax in abundance. It had some moments before taken its fill of honey, and now it was standing on a mound of the precious substance of which it knew its city was built. What did it do ? Without a moment's further hesitation this apparently shrewd little adventurer began to scrape and bite off little flakes of wax. These gathered like a tiny heap of minute white shavings at its feet ; and now it did a still more wonderful thing. How was it to carry this supply of wax back to its hive ? It knew there was only one way. How did it carry home the big balls of bright-coloured pollen it gathered when out in the meadows ? In the flower-covered fields of summer it flew straight to the blossoms and carried back to the hive great bundles of pollen, and so now, for a moment, it was confronted with a difficulty. How could it carry this supply of wax home ? A little white heap stood on the square of wax, and still the bee pegged away, biting shavings off, and made another little heap ; then, to my further astonishment, it picked up these small particles of wax and passed them to its back legs, and in the small hairy pouches in which it stored the pollen grains, it placed these wax shavings. When a big white load was on each leg it attempted to fly through the window, so I opened the door and liberated this remarkable little creature of progress.

If we enter the birds' world, and watch them in their own homes, as I have done, we see many wonderful little incidents which go to prove that they certainly do think out little problems for themselves. Some birds are more intelligent than others. It is not always the largest that show the most pluck. I have been attacked by the diminutive Willow-Warbler when I have been too near its nest, and I have known the great Golden Eagle fly from its nest while it was being robbed. The Wild Goose is certainly one of the most foolish that I have come across, for I have seen it sit by its nest, and make no attempt to guard it, while a Hooded Crow swooped down and carried away the three goslings. On the other hand, the Raven will protect its young, and often viciously attacks anyone who ventures too near.

Last spring I was in a well-built hiding-place close to a Raven's nest, and waited there for eight hours, and during that time witnessed several interesting incidents. It was an exceedingly hot day, and after two o'clock the sun was beating down upon the young. Two or three hours later the young were parched, and when the parents brought food to them they noticed their plight. They then talked for a few moments in raven language, and no doubt the hen was telling her mate that the youngsters needed water, for they then flew to a small stream that was trickling down the rocks, filled their beaks with water and carried it to their young.

A few weeks ago I was watching that small Falcon, the Merlin. It had got one of its legs caught in a string noose, and was struggling violently to free itself. The more it pulled the tighter got the noose, and after a few minutes it sat down, looked at its leg, and tried to see what it could do. It then caught hold of the string inside the knot and pulled, and it found that it became looser. It continued to pull, eventually opened the knot, withdrew its leg and was free. It was a difficult problem for a bird to solve, but it successfully thought it out, and performed the operation.

The Grebes cover their eggs over for protection, for there are many enemies which are fond of them. The Coot is one, and this bird will often rob the nest if the eggs are left unguarded. However, with a thick covering of weeds over them, the nest looks empty when the Coot swims by. But I know one large lake where the Coots have discovered that there are eggs underneath this covering and most nests are robbed. A few years ago about thirty pairs of great-crested Grebes each brought up a family. Although there are still as many Grebes there, this year only three or four pairs succeeded in rearing their young. It will be interesting to find out whether the Grebes will desert their old home or find another method of protecting their eggs from the ravages of the destructive Coots.

Some young birds show fear the instant they leave their shells. Others are not afraid of human beings until their parents have taught them that nearly all other creatures are enemies. The young Ravens in the nest previously mentioned knew exactly what to do when they heard the varied notes of their parents. There was the cry of alarm, and instantly the four young would crouch in the bottom of the nest. There was the note that told them food was coming, and instantly they were excited, sitting up on the nest and calling to their parents as they saw them approaching over the hills. Then there was the signal which meant "all clear," and the youngsters would rise from the bottom of their home, and walk along the ledge on which their nest was built.

I once came upon a nest of young Dabchicks directly after they had left their shells. They had never had the chance of seeing a human being before, but they knew at once that there was danger. The mother gave a call, and dived, and at once these tiny birds tried to follow her. They could not go far under the surface, in fact they just bobbed under and came up, but they knew that was the correct thing to do, and they tried to get away from the danger that instinct told them was near.

The young Lapwing, as soon as it begins to walk, which may be about a couple of hours after it leaves its shell, will, if the parents give out the loud cry of alarm, hide itself in the grass. Or rather it will push its small head into a grass-tuft, no doubt thinking that if it cannot see it cannot be seen. But directly we discover the small bird, and it knows that it is being observed, it jumps up and takes to its legs, runs off and again hides its head.

Most young birds, if taken from the nest when quite small, will become very tame, and show no signs of fear from the very first. The Jackdaw is a good instance, and after feeding the birds a few times they may be given their liberty; but they will return to their owners at feeding-time, and remain in the vicinity of the house until the following spring.

The most wonderful instance of instinct guiding a bird is that of the young Cuckoo. The adult Cuckoo makes no nest, it does not rear its own young, leaving this for other birds to do. The eggs are placed in the nests of insect-eating birds, one in each, and if the young Cuckoo, which requires a very large amount of food, allowed the other young in the nest to be reared, it would not receive enough nourishment.

Late on the second day after leaving the shell the young Cuckoo knows that there are rivals for food present, and so it makes an attempt to turn them out. How successful it is, only those who have witnessed the marvellous performance know. The youngster at this stage is less than one inch in length, it is blind, for its eyes are tightly sealed up, it has no feathers upon its body; in fact, it looks like a small helpless mass of flesh lying at the bottom of the nest.

Suddenly it seems to become possessed of great strength; it wriggles about in its home until it has one of its rivals upon its back. Now it raises its two small wing-bones, which look like two fleshy arms, to prevent its captive falling off its back, and, using the strong muscles of it legs, raises the small bird slowly but surely towards the edge of the nest, by a series of sharp jerks. If the nest is a deep one, it grips the edge with its beak, and actually walks up the side, balancing its rival upon its back. If it is still unable to get it over the side, it uses its wings as two battering rams, working these backwards and forwards until the bird is flung over the side. As soon as this feat is accomplished, down it goes to the bottom of the nest, and the other bird is treated in the same manner. There are seldom more than two to turn out, for the adult Cuckoo when she places her egg in the nest usually removes two eggs, leaving three in all.

In the case of the young cuckoo, it can be nothing but blind instinct which induces it to remove its nest companions, but with some of the other instances I have mentioned reason seems to play an important part. When a bird like the Merlin is placed in a position it has never been in before, and it is able to free itself from what looks like a secure trap, reason certainly must enter into it. The Raven which carried water to her parched young saw what they wanted, and gave it to them.

Let me give one more instance of a bird doing a most unusual thing to give comfort to her young. Last spring I was hiding near the nest of a Reed Warbler. The young were about half-grown. The nest, built in last year's dead reed-stems, had no shelter from the great heat of the sun. The mother found that by brooding on the nest it only added to the discomfort of the young, for it was an exceedingly hot day. First she stood in the nest, partly opened her wings,and allowed the air to pass under her body, while keeping the young in the shade. Then I noticed that each time the male arrived at the nest with food, she disappeared. A few moments later she was back, and on her feathers there were little drops of water. The feathers under her body were soaked. Every few minutes she was throwing herself into cold water, so that her young should obtain a little benefit, and by doing this she certainly added to their comfort.

How do young birds learn to sing ? In some cases they must learn from their parents, but in others it must come natural to them. Or perhaps, when they open their beaks to sing, the notes peculiar to that bird are the only notes it is able to utter. For instance, if we take a Nightingale from its nest and rear it by hand, it will sing perfectly, although it has never had an opportunity of hearing its parents.

I saw three young foxes brought into a farmyard ; they were only just able to walk, yet they instantly picked up the scent of the fowls and began to track them. They had received no lessons from their parents, yet they seemed to know exactly what to do. If we take birds of prey from their nest when they are quite young, rear them until they are able to fly well, and then liberate them, they will simply starve to death. They have no idea of how to hunt for their food, and no inclination. Here are two instances, showing that in one case the creature knew what to do by instinct, while the young birds, not having had lessons, are helpless.

An interesting experiment may be made in the winter months which goes to prove that the Blue Tit is able to think out and solve a problem. Place a small lump of fat on a string about eight inches in length, and tie this at the extreme end of a twig or branch. The Blue Tit will sometimes swing on the fat as it sways backwards and forwards, but in many instances it will stand on the branch above, then stoop down, take hold of the string in its beak, pull this up, place this under one foot, again pull at the string, and once more hold this under the claws, until the fat is lifted to the branch. It will now hold the food under its feet, and enjoy its meal in a much more comfortable manner.

An incident which proves that birds learn by experience what to do occurred in this district a few years ago. A pair of Blue Tits nested in a lamp-post, a most unusual place. The following year the young which were reared in this curious nesting-site thought that it was the right and only place in which to build, and several of the lamp-posts were occupied by them.

Wild creatures will quickly adapt themselves to changed conditions. The Moorhen usually builds its nest of grass and reed stems, but on a piece of water where these were absent the birds constructed their home of wood, with just a small lining of grass. A number of Linnets which nested for years in small canopies of fir-branches, which were placed on the ground to attract Wild Ducks, still carried on when these were done away with. There were no small bushes there or anything that such birds usually nest in, so they took to the grass, and built their nests a few inches above the ground.

I once came across a most interesting Kentish Plover. This bird makes no nest, laying its eggs upon the ground, and these are exactly like their surroundings, the stones upon which they are placed. While watching the bird sitting upon two eggs, from my "hide" six feet away, I noticed that she continually left them, then sat on the stones about a yard to the left. On leaving my place of observation in the evening, I tried to find out why she did this, and found that she had another egg laid there. She was not able to move it, and so she took it in turns to sit upon them. Whether she eventually managed to hatch all three I was not able to find out.

In the foregoing incidents, which are all original observations, I have mentioned some which can be put down to instinct, others to experience, and a few which certainly show powers of reasoning. Personally, the more I study wild Nature, the more I am convinced that some creatures are able to think out and solve problems for themselves.

THE MISUSE OF MIND

By Karin Stephen

[*The following article is taken from a study of* The Misuse of Mind, *shortly to be published in book form, dealing with Bergson's attack on logical thought as a method of metaphysical speculation. If Bergson's criticisms are valid it would appear that logical thought only takes the thinker further and further from reality: the last chapter of the book will be devoted to showing how logic can apply to reality and what place the intellect should occupy in philosophy.*]

IN order to understand Bergson it is not necessary to have any previous acquaintance with philosophy; indeed, the less the reader knows of current metaphysical notions the easier it may perhaps be for him to adopt the mental attitude required for understanding Bergson. For Bergson says that the tradition of philosophy is all wrong and must be broken with: according to his view philosophical knowledge can only be obtained by "a reversal of the usual work of the intellect."

The usual work of the intellect consists in analysis and classification: if you have anything presented to you which you do not understand the obvious question to put to yourself is "What is it?" You will not be satisfied, intellectually, till you have succeeded in analysing the unfamiliar thing, that is, discovering in it familiar qualities by means of which it may be classified as "a so-and-so." Now Bergson would not think of denying that this intellectual method, in which facts of acquaintance are used as material for abstraction, is of the utmost practical use for explaining facts and so enabling us to control them. He suggests, however, that our preoccupation with these useful abstractions, classes and their relations, misleads us as to the facts themselves. What actually takes place, he thinks, is a kind of substitution of the explanation for the fact which was to be explained. This may, at first sight, seem unlikely or even out of the question—it is possible to make mistakes as to what the correct explanation of a given fact of acquaintance is, *i.e.*, what class it belongs to, but as to what it is at the moment when we are actually being acquainted with it one would have thought there could be no doubt; it seems impossible that one could make any mistake about that.

No doubt it is impossible to have such a thing as a false experience; an experience is what it is, only judgments can be false. But it is quite possible to make a false judgment as to what experience we are having, or, still more commonly, simply to take for granted that an experience must be such and such, without ever attending to see whether it is or not. A small child taken to a party and told that parties are great fun, if questioned afterwards, will very likely say it has enjoyed itself, though it may have been quite evident at the time that it was bewildered or bored. Even when we grow up, names still have a tendency to impose upon us and disguise from us the actual nature of our experiences. There are not very many people who, if invited to partake of the last bottle of some famous vintage wine, would have the courage to admit, even to themselves, that it was nasty, even though it was, in fact, considerably past its prime. Cases of this kind, with which we are all familiar, are enough to make us realise that it is actually quite possible to make mistakes even about facts which we know directly, to overlook the actual fact altogether because we have made up our minds in advance as to what it is sure to be.

Now Bergson says that such errors are not confined to stray instances, such as we have noticed, in which the imposition of preconceived ideas can readily be detected by a little closer attention to the actual fact. He believes that a falsification due to the explanations of our experience which we make for ourselves runs right through the whole of our direct experience itself and this, being habitual, is much harder to see through.

Explanation consists in constructing a plan or map in terms of such abstractions as classes and their relations, or sometimes, when the abstraction has been carried a step further, in terms simply of words or symbols, by means of which we represent the causal relations between such of the actual facts which we know directly as can be classified. This plan is more comprehensive and complete than the actual facts which we know directly in the ordinary course of things, for which it stands, and it enables us to explain these facts in terms of the classes of causes from which they follow, and the classes of effects which they produce. No explanation, of course, can actually acquaint us directly with the real antecedent or consequent facts themselves: it can only tell us to what classes these facts must belong. The terms of the plan by which we explain the facts, the classes, for instance, daylight and darkness, and their relation of alternation, or the words or symbols which stand for classes and relations, are not themselves facts but abstractions. We cannot think in terms of actual facts: the intellectual activity by which we formulate general laws can only work among abstractions, and in order to explain a fact we are obliged to substitute for it either a class or word or other symbol. All description and explanation of facts consists in substitutions of this kind. The explanation applies provided the abstraction is based on fact, that is, provided it is possible to fit the fact to which the explanation is intended to apply into the class employed to explain it: the general law, for instance, about the alternation of the classes daylight and darkness will explain any facts which can be fitted into one or other of these classes. The general law itself, however, does not consist of such facts but of abstractions substituted for the facts themselves. Such substitution is extremely useful and perfectly legitimate so long as we keep firm hold of the fact as well, and are quite clear about what is fact and what only symbol. The danger is, however, that, being preoccupied with describing and explaining and having used abstractions so successfully for these purposes, we may come to lose our sense of fact altogether and fail to distinguish between actual facts and the symbols which we use to explain them.

This, indeed, is just what Bergson thinks really does happen. No doubt an intelligent physicist is perfectly aware that the vibrations and wave-lengths and electrons and forces by which he explains the changes that take place in the material world are fictions, and does not confuse them with the actual facts in which his actual knowledge of the material world consists. But it is much more doubtful whether he distinguishes between these actual facts and the common-sense material objects, such as lumps of lead, pieces of wood and so on, which he probably believes he knows directly but which are really only abstractions derived from the facts in order to explain them just as much as his own vibrations and wave-lengths. When a scientist frames a hypothesis he employs the intellectual method of substitution with full consciousness of what he is about: he recognises that its terms are abstractions and not facts. But the intellectual method of explaining by substituting general abstractions for particular facts is not confined to science. All description and explanation, from the first uncritical assumption of common sense right up to the latest scientific hypothesis, employs the intellectual method of substituting abstractions for actual facts. The common sense world of things, events, qualities, minds, feelings and so on, in which we all pass our everyday lives, is an early and somewhat crude attempt to describe the continually changing fact which each of us experiences directly, but it is perhaps more misleading than the later elaborate constructions of chemistry, physics, biology or psychology, in that things and qualities are more easily mistaken for facts than more obviously hypothetical assumptions. Bergson points out that the various things of which this common-sense world consists, solid tables, green grass, anger, hope, etc., are not facts: these things, he insists, are only abstractions. They are convenient for enabling us to describe and explain the actual facts which each of us experiences directly, and they are based upon these facts in the sense of being abstracted from them. The objection to them is that we are too much inclined to take it for granted that these things and qualities and events actually are facts themselves, and in so doing to lose sight of the real facts altogether. In support of his view that things having qualities in successive relations are mere abstractions Bergson points out that whenever we stop to examine what it actually is that we know directly, we can see at once that this fact does not consist of things and qualities at all. Things and qualities are clearly marked off one from another; they change as a series of distinct terms; but in what we know directly there are no clear-cut distinctions and so no series. The assumption which we usually make that the facts must consist of such things as events and qualities and material objects is not based upon the evidence of direct knowledge; we make the assumption that the facts must be of this kind simply because they can be explained in these terms.

It is true that there is some correspondence between the actual facts and the common-sense world of solid tables and so on, and we usually jump to the conclusion that this correspondence would not be possible unless the facts had common qualities. There is no denying that facts can be classified and it seems only natural to take it for granted that whatever can be classified, must share some quality with whatever else belongs to the same class, that, indeed, it is just on account of all sharing the same common quality that facts can be classified as being all of the same kind. Thus common sense takes it for granted that all facts which can be classified as red, and so explained by all the general laws which we know about the relations of red things to other things, must share a common quality of redness. It seems only natural to make this assumption because we are so used to making it, but if we stop to examine the facts which we know directly, we discover that they do not bear it out, and we are gradually driven to the conclusion that it is quite unwarranted. It is only bit by bit, as we gradually accustom ourselves to doubting what we have been accustomed to take for granted, that we realise how ill this assumption fits the facts.

Common sense starts out with the assumption that what we know directly is such things as trees, grass, anger, hope, and the like, and that these things have qualities such as solidity, greenness, unpleasantness, and so on, which are also facts directly known. It is not very difficult to show that, if we examine the facts which we know directly, we cannot find in them any such things as trees, grass or minds, over and above the various qualities which we say belong to them. I see one colour and you see another: both of them are colours belonging to the grass but neither of us can find anything among the facts known to him corresponding to this grass, regarded as something over and above its various qualities, to which those qualities are supposed to belong.

This drives common sense back on to its second line of defence, where it takes up the much stronger position of asserting that, while trees, grass, minds, etc., are not among the facts directly known, their qualities of solidity, greenness, etc., are. It is usual to add that these qualities are signs of real trees, grass, etc., which exist independently but are only known to us through their qualities. It is much harder to attack this position, but its weakness is best exposed by considering change as we know it directly, and comparing this with change as represented in terms of qualities. Change, when represented in terms of qualities, forms a series in which different qualities are strung together one after the other by the aid of temporal relations of before and after. The change perceived when we look at the spectrum would thus have to be described in terms of a series of colours, red before orange, orange before yellow, yellow before green, and so on. We might certainly go into greater detail than this, distinguishing any number of shades in each of the colours mentioned, but the description would still have to be given in the same form, that of a series of different colours, or shades of colour, strung together by relations of before and after. Now the fact which we know directly does not change so: it forms a continuous becoming which is not made up of any number, however great, of fixed stages. When we want to represent this changing fact in terms of qualities we have to put together a series of qualities, such as red, orange, etc., and then say that " the colour " changes from one of these to another. We pretend that there is " a colour " which is not itself either red or green or orange or blue, which changes into all these different colours one after another. It is not very difficult to see that this abstract colour which is neither red nor orange nor green nor blue is not a fact of acquaintance but only an abstraction which is convenient for purposes of description: it is not quite so easy to see that this criticism applies equally to each of the separate colours, red, orange, etc., and yet a little attention shows that these also are really nothing but abstractions. With reference to the whole changing fact which is known directly through any period, the change in respect to colour is clearly an abstraction. Suppose, for instance, at a ballet you hear the overture, and then the curtain goes up and you see the stage full of people dancing. Taking this whole event you might describe by saying that there was change first in respect of sound and afterwards in respect of colour. This would be to describe the changing fact in terms of two abstractions in temporal relations. Is there really anything to choose between this and the description of the change which is seen in the spectrum as a series of red, orange, green, etc., in temporal relations ? Each of these, the red, the orange, and so on, just like sound and then colour in the illustration of the ballet, is simply a fictitious stage in the process of changing which it is convenient to abstract when we want to describe the process but which does not itself occur as a distinct part in the actual fact. Change, as we know it directly, does not go on between fixed points such as these stages which we abstract; it goes on impartially, as it were, through the supposed stages just as much as in between them. But though fixed stages are not needed to enable change to occur, simply as a fact, they are needed if we are to describe change and explain it in terms of general laws. Qualities are assumptions required, not in order that change may take place, but in order that we may describe, explain, and so control it. Such particular qualities as red and green are really no more facts directly known than such still more general, and so more obviously fictitious notions as a colour which is of no particular shade, or a table, or a mind, apart from its qualities or states. All these fixed things are alike abstractions required for explaining facts directly known but not occurring as actual parts of those facts or stages in their change.

Thus it appears that the common sense world of things and qualities and events is in the same position with regard to the actual facts directly known as scientific hypotheses such as forces, electrons, and so on, in their various relations: none of these actually form parts of the fact, all of them are abstractions from the fact itself which are useful for explaining and so controlling it. Common sense stops short at things and qualities and events: science carries the abstraction further, that is all the difference: the aim in both cases is the same, the practical one of explaining and so controlling facts directly known. In both cases the method employed is the intellectual method of abstraction which begins by discriminating within the whole field directly known in favour of just so much as will enable us to classify it, and ignoring the rest, and then proceeds to confuse even this selected amount of the actual fact with the abstract classes or other symbols in terms of which it is explained. We have just seen how the result, the worlds of common sense or sciences differ from the actual facts in the way in which they change: these worlds of abstractions represent change as a series of fixed stages united by temporal relations, while the actual fact forms a continuous process of becoming which does not contain any such fixed points as stages in relations.

The more we shake ourselves free from the common sense and scientific bias towards substituting explanations for actual facts the more clearly we see that this continuous process of changing is the very essence of what we know directly, and the more we realise how unlike such a continuous process is to any series of stages in relations of succession.

The unsatisfactoriness of such descriptions is no new discovery: the logical difficulties connected with the attempt to describe change in terms of series of successive things or events have been familiar since the time when Zeno invented the famous dilemma of Achilles' race with the tortoise. Mathematicians have been in the habit of telling us that these difficulties depend simply on the fact that we imagine the series of positions at which Achilles and the tortoise find themselves from moment to moment as finite: the device of the infinite series, they say, satisfies all the requirements needed for representing change and solves all the logical difficulties which arise from it. Bergson's difficulties, however, cannot be solved in this way for they are not based upon the discovery of logical absurdities but upon the discrepancy between the description and the fact. What he maintains is that the description of change in terms even of an infinite series of stages leaves out the change altogether. Zeno's difficulty in seeing how Achilles could ever catch up with the tortoise provided the tortoise was given a start, however small, would, he says, be unanswerable if change ever really had to proceed by stages. He solves the problem simply by denying that either Achilles or the tortoise ever is at one particular point at some particular moment. Such a description of change, he says, leaves out the real changing. For the stages do not change, and so, if there is to be any change, it must, presumably, take place in between one stage and the next. But in between any two stages of an infinite series there are supposed to be an infinite number of other stages, so that to any given stage there *is* no next stage. Change, therefore, cannot take place between one stage and the next one, there being no next one, and since it is equally impossible that it should take place at any one of the stages themselves it follows that an infinite series of stages leaves out change altogether. Similarly a series of instants before and after one another leaves out of time just the element of passage, becoming, which is its essence.

The truth, Bergson says, is that with fixed stages, no matter how many you take, and no matter in what relations you arrange them, you cannot reproduce the change and time which actually occur as facts directly known. Change and time, as represented by abstractions, according to the intellectual method, consist of stages in relations of succession, but the fact does not happen by stages and is not held together by relations: if we compare the representation with the fact we find that they differ profoundly in their form.

According to Bergson, this difference in form is one of the two essential respects in which abstractions misrepresent facts and in which, consequently, we are led into error as to the facts if we fail to distinguish them from the abstractions in terms of which we explain them, or take for granted that they correspond exactly with our explanations.

Bergson gives the name "space" to the form which belongs to abstractions but not to actual facts: abstractions, he says, are "spatial," but facts are not. This use of the word "space" is peculiar and perhaps unfortunate. Even as it is ordinarily used the word "space" is ambiguous, it may mean either the pure space with which higher mathematics is concerned, or the public space, which contains the common-sense things and objects and their qualities which make up the everyday world, or the private space of sensible perception. When Bergson speaks of "space," however, he does not mean either pure, or public, or private space, he means an *à priori* form imposed by intellectual activity upon its object. This resembles Kant's use of the word, but Bergson's "space" is not, like Kant's, the *à priori* form of sense acquaintance, but of thought, that is, it is logical form. For Bergson "spatial" means "logical," and since so much misunderstanding seems to have been caused by his using the word "space" in this peculiar sense we shall perhaps do better in what follows to use the word "logical" instead.

Now whatever is logical is characterised by consisting of distinct, mutually exclusive terms in external relations: all schemes, for instance, and diagrams, such as a series of dots one above the other, or one below the other, or one behind, or in front of the other, or a series of instants one after the other, or a series of numbers, or again any arrangements of things or qualities according to their relations, such as colours or sounds arranged according to their resemblance or difference: in all these each dot, or instant, or number, or colour-shade, or note, is quite distinct from all the others and the relations which join it to the others and give it its position in the whole series are external to it in the sense that if you changed its position or included it in quite another series it would nevertheless still be just the same dot or instant or number or quality as before.

These two logical characteristics of mutual distinction of terms and externality of relations certainly do belong to the abstractions employed in explanations, and we commonly suppose that they belong to everything else besides. Bergson, however, believes that these logical characteristics really only belong to abstractions and are not discovered in facts but are imposed upon them by our intellectual bias, in the sense that we take it for granted that the facts which we know directly must have the same form as the abstractions which serve to explain them.

This habit of taking it for granted that not only our abstractions but also the actual facts have the logical characteristics of consisting of mutually exclusive terms joined by external relations is, according to Bergson, one of the two serious respects in which our intellectual bias distorts our direct acquaintance with actual fact. He points out, as we saw, that the facts with which we are acquainted are in constant process of changing, and that, when we examine carefully what is actually going on, we discover that this change does not really form a series of distinct qualities or percepts or states, united by external relations of time, resemblance, difference and so on, but a continuous process which has what we might call a qualitative flavour but in which distinct qualities, states, and so on, do not occur. "Considered in themselves," he says, "profound states of consciousness have no relation to quantity: they are mingled in such a way that it is impossible to say whether they are one or many, or indeed to examine them from that point of view without distorting them." Now, strictly speaking, of course, these "states of consciousness" ought not to be referred to in the plural, it is, in fact, a contradiction to speak of "states of consciousness" having "no relation to quantity": a plurality must always form some quantity. This contradiction is the natural consequence of attempting to put what is non-logical into words. It would have been just as bad to have referred to "the state of consciousness," in the singular, while at the same time insisting that it contained resemblance and difference. The fact is that plurality and unity, like distinct terms and external relations, apply only to whatever has logical form, and Bergson's whole point is to deny that the fact (or facts) directly known has (or have) this form and so that any of these notions apply to it (or them).

This, of course, raises difficulties when we try to describe the facts in words, since words stand for abstractions and carry their logical implications. All descriptions in words of what is non-logical are boundto be a mass of contradictions, for, havingapplied any word, it is necessary immediately to guard against its logical implications by adding another which contradicts them. Thus we say our experience is of facts, and must then hastily add that nevertheless they are not plural, and we must further qualify this statement by adding that neither are they singular. A description of what is non-logical can only convey its meaning if we discount all the logical implications of the words which, for want of a better medium of expression, we are driven to employ. Our whole intellectual bias urges towards describing everything that comes within our experience, even if the description is only for our own private benefit. Unfortunately the language in which these descriptions have to be expressed is so full of logical implications that, unless we are constantly on our guard, we are liable to be carried away by them, and then, at once, we lose contact with the actual facts. In order to get round this almost universal tendency to confuse abstractions with facts Bergson sometimes tries to get us to see the facts as they actually are by using metaphor instead of description in terms of abstract general notions. He has been much criticised for this, but there is really a good deal to be said for attempting to convey facts by substituting metaphors for them rather than using the ordinary intellectual method of substituting abstractions reached by analysis. Those who have criticised the use of metaphor have for the most part not realised how little removed such description is from the ordinary intellectual method of analysis. They have supposed that in analysis we stick to the fact itself, whereas in using metaphor we substitute for the fact to be described some quite different fact which is only connected with it by a more or less remote analogy. If Bergson's view of the intellectual method is right, however, when we describe in abstract terms arrived at by analysis we are not sticking to the facts at all, we are substituting something else for them just as much as if we were using an out and out metaphor. Qualities and all abstract general notions are, indeed, nothing but marks of analogies between a given fact and all the other facts belonging to the same class: they may mark rather closer analogies than those brought out by an ordinary metaphor, but on the other hand in a frank metaphor we at least stick to the concrete, we substitute fact for fact and we are in no danger of confusing the fact introduced by the metaphor with the actual fact to which the metaphor applies. In description in terms of abstract general notions such as common qualities we substitute for fact something which is not fact at all—we lose touch with the concrete and, moreover, we are strongly tempted to confuse fact with abstraction and believe that the implications of the abstraction apply to the fact, or even that the abstraction is itself a real part of the fact.

Language plays a most important part in forming our habit of treating all facts as material for generalisation, and it is largely to the influence of the words which we use for describing facts that Bergson attributes our readiness to take it for granted that facts have the same logical form as abstractions. It is language again which makes it so difficult to point out that this assumption is mistaken, because, actually, the form of facts is non-logical, a continuous process and not a series. The only way to point this out is by describing the nature of the non-logical facts as contrasted with a logical series, but the language in which our description of the non-logical facts has to be conveyed is itself full of logical implications which contradict the very point we are trying to bring out. Descriptions of non-logical processes will only be intelligible if we discount the logical implications inherent in the words employed, but in order to be willing to discount these implications it is necessary first to be convinced that there is anything non-logical to which such a description could apply. And yet how can we be convinced without first understanding the description? It appears to be a vicious circle, and so it would be if our knowledge of change as a process really depended upon our understanding anybody's description of it. According to Bergson, however, we all do know such a process directly: in fact, if he is right, we know nothing else directly at all.[1] The use of description is not to give us knowledge of the process that we already have, but only to remind us of what we really knew all along, but had rather lost contact with and misinterpreted because of our preoccupation with describing and explaining it. Bergson's criticism of our intellectual methods turns simply upon a question of fact, to be settled by direct introspection. If, when we have freed ourselves from the preconceptions created by our normal commonsense intellectual point of view we find that what we know directly is a non-logical process of becoming, then we must admit that intellectual thought is altogether inappropriate and even mischievous as a method of speculation.

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[1] At this point a fundamental difficulty naturally presents itself: if we are never really acquainted with qualities, if qualities are, as Bergson says, mere abstractions, how come we to be able to make these abstractions, and why do they apply to the actual facts of acquaintance? It is not possible to go into this question in the present article but an attempt is made to meet the difficulty in the last chapter of the book from which this article is taken.

THE METHOD OF PSYCHIC RESEARCH

By James H. Hyslop

WHEN I speak of the "method of psychic research" I do not mean anything new or different from method or manner in the other sciences: for method in its most general aspect is simply observation, classification and explanation of facts. In that respect the method of psychic research is exactly the same as in all sciences, and there is nothing new about it. But there is a difference in some assumptions that have to be made which affect the way we proceed in the work of investigation.

In almost all other scientific fields we are dealing with facts or phenomena whose existence is not in question. We are seeking to explain perfectly familiar phenomena. We admit the facts to start with and it is the explanation that is in question.

But in psychic research it is somewhat different. It is the facts that are in question, and theories, especially new ones, are not justifiable until we have assured ourselves that there are facts to explain.

Psychic research is, therefore, occupied first with the examination of claims for the existence of certain alleged facts. Evidence for facts, not evidence for explanations, is primarily our problem.

Scientific psychic research began in 1882 with the organisation of the English Society for that work. This does not mean that there was no individual scientific interest before that date. There was, and indeed there are, records of good investigations long prior to that time, but they were not made by a body of men organised with a view to making the results comparable with those obtained by all scientific societies on other subjects. They satisfied individual curiosity and stimulated public interest, but obtained few converts, for the reason that there was no continuity of organised effort such as the English Society affords.

The alleged phenomena which gave rise to the investigation were those which claimed to be communications or revelations from the dead. These things, whether genuine or spurious, existed for many ages, extending back even to primitive savages. Taylor's *Primitive Culture*, Frazer's work among savages, the reports of missionaries among them and many works on anthropology are testimony to the age of the alleged facts. A neglected literature of the Middle Ages is full of the miraculous, especially in the form of cures. But it has been the tendency of the last twenty-five years to identify the subject with what apparently originated with the Fox sisters in their rappings and other phenomena. It was a mistake to allow the impression to rise that the alleged phenomena were recent. Intelligent students of history know better. They have existed from time immemorial, and the widespread theory of *Animism*, or of the phenomena which moderns describe by the term *Animism*, is unimpeachable testimony to the age of the alleged facts. But owing to various circumstances in the growth of materialism and scepticism, with the simultaneous decrease in the tenacity of religious beliefs based upon the immortality of the soul, the excitement aroused by the Fox sisters brought the alleged facts to the attention of intelligent people, and as a consequence the Society for Psychical Research was organised.

Two general types of phenomena had characterised the claims of the Spiritualists: the physical and the mental. The physical usually represented some form of alleged movement of objects without contact. Sometimes independent voices and sometimes so-called materialisations were claimed. The mental phenomena always represented some type of alleged communication from mind to mind independent of normal sense perception, or apparitions of the dead. Both types were more or less easily imitated, whether under the same or different conditions. The consequence was that the magician and the conjurer saw a rich field for the exploitation of illusion among the believers in the marvellous. Unscientific and credulous people rushed into the trap and accepted as inexplicable by ordinary causes all sorts of imitations or pretended miracles. The consequence of this was the acceptance of the magician's point of view and method of approach to the occurrence of the alleged supernormal. The magician did not always claim that his phenomena were inexplicable. Usually he openly avowed that they were illusions or tricks. He made no pretence of the miraculous. But there was a class that had no such scruples in their tricks. They were quite willing to play on the credulity of the ignorant and of those seeking consolation for the loss of their friends; and they succeeded in saturating the public, the intelligent part of it, at any rate, with the preconception that the whole field was that of conjuring. The intelligent classes had no other conception of it to start with and saw only the importance of not being fooled regarding the subject.

It was in the midst of this public opinion that the Society for Psychical Research was formed. The method which it was forced to pursue in the situation described was to suppose that magic was the first explanation of the alleged facts. No matter how well attested any alleged phenomenon might be, the Psychical Researcher had to assume that conjuring was the first possibility to be removed before giving any other hypothesis a hearing. Any attempt to vindicate or assert the existence of the supernormal without removing the claims of the conjurer only met with ridicule, all the more violent because the conjurer had won the confidence of the public. The layman knew well enough his own limitations and liabilities to illusion, and it was a godsend to him to be able to refer the whole matter to the magician. His imitations had the field of attention, especially because common experience creates a presumption that the unusual is only the familiar in disguise; and the best proof of this claim was the exposition of the conjurer's trick which seemed inexplicable under the circumstances of its performance. Apparently no amount of evidence would suffice to prove the exceptional, especially such a thing as mind-reading or communication with the dead. The former had to do with the living, presumably, and might be more credible, especially if it could be used to discredit the latter. Materialism had so discredited the belief in survival after death that, with most intelligent people, it was regarded either as impossible or as incapable of proof, and so a negligible event. Magic seemed to account for all that was ordinarily inexplicable, and since, consequently, it held the field of interest whenever any claim for the supernormal arose, the psychic researcher had first to show his acquaintance with its potentialities and to eliminate all possible appeals to it.

There was another reason which strengthened the appeal to magic as an explanation. Conjuring is the work of a normal person, and so anything occurring under normal conditions is exposed to the suspicion of trickery, if it appears to be exceptional, just as conjurers' illusions appear to be unusual and miraculous. In the early stages of the work of the Society it was laid down as a condition of accepting accounts of unusual experiences that the informant should be a normal person. Apparitions and certain alleged coincidences of the telepathic type were exposed to the suspicion of being illusions or hallucinations. Unverified apparitions were especially accusable of being hallucinations, and more particularly so if they were supported only by the testimony of the percipient and there were no conditions to show that they were due to an extraneous stimulus. The medical man and psychiatrist were so familiar with visions and similar purely subjective experiences that they easily disposed of such cases by the hypothesis of hallucination.

As a matter of fact it made no difference whether the reporter was normal or abnormal. The evidence for the supernormal was something other than the judgment of the informant. It was the relation of the experience to some external event which could not possibly be caused by any processes of the percipient's own mind. For instance, consider the case of an apparition: A sees an apparition of B, whom he knows to be dead, let us say; whether A is a normal or an abnormal person makes no difference. We may suppose the fact to be due to a casual hallucination. This may not be provable, but it is supposable, and that suffices for the sceptic and scientific man alike to disqualify the incident as evidence for any other hypothesis. But if we can prove that A did not know that B was dead and that the apparition, in detail, represented some facts about B at the time that the apparition occurred, as well as coinciding with the time of his death, the case is quite different. It will not be the mere apparition that has to be explained, as that may be characterised in any case as we please. It is the relation of it to the external event which it seems to betoken. If such things occur frequently enough they will exclude chance and will demand the hypothesis of some sort of causal nexus between the apparition and the event. Whether the percipient be normal or abnormal has nothing to do with the case.

But the public and the scientific psychiatrist were so infected with the assumption that it is the apparition alone that has to be accounted for that it was important to assume or to prove that the subject of the experience was normal, so as to create a presumption against the hypothesis of hallucination. The great fault of the first assumption of the Society was that it allowed no alternative between fraud and genuine phenomena. This might be true enough when you assumed that you were dealing only with normal people. But while this was necessary in order to eliminate the dogmatism of the psychiatrist, it was not the way to eliminate the conjurer. He had to be shown that the problem was one of abnormal psychology. Having proved, however, in normal people that the supernormal could occur, it was safe to advance to the abnormal type and either to find the same phenomena there or else to show that the simulation of them in such types did not necessarily imply fraud. This was the important step in studying many cases which had passed as fraud but which were in fact nothing but cases of hysteria, with more or less of the supernormal mixed up with the abnormal. The presence of abnormal conditions excluded the right to bring the accusation of fraud, and the presence of supernormal elements excluded the right to appeal to conjuring as an explanation.

It was the prejudice of the world against the facts, and perhaps a good deal of indolence about investigating them, that prevented men from admitting the right way to approach the problem. But it was essential to exclude the magician and his assumptions, if any progress was to be made. Scientific men in some cases knew this well enough, but their interests, legitimate and illegitimate, made it seem prudent to avoid emphasising the psychopathological approach to the problem. Had they taken it up long ago in the light of abnormal psychology they would have made a thousandfold more progress than they did by concessions to the conjurer. But unfortunately there were so many interests involved in defending orthodox science that there was no desire to compromise the issue.

The method in the future for investigating dubious phenomena must always reckon with the possibility of various hysterical or somnambulic conditions simulating the magician's explanations without involving his conception of the motives or mental states behind the events. When I say " hysterical " I know I am using an ambiguous term. It is not my fault. I should agree with anyone who deplored the change in the scope of that term, as it leads to mixing up the implications of its older usage with a new one which does not imply those associates. But psychiatrists have fixed the term and I can only use it here to denote any subconscious action that manifests a form of mental dissociation. With that conception of it we may safely insist that in some form we must reckon with hysterical and somnambulic states of mind when investigating certain types of phenomena, just for the purpose of getting a really scientific knowledge of very complex facts. Moreover, we must remember that the employment of the term involves no explanation of the facts. The general public supposes that it implies an alternative explanation to that which the spiritualist proposes but the fact is that hysteria offers no explanation whatever of any phenomenon. It is but a name for certain symptoms whose origin is imperfectly understood even by medical men. It follows that the magician is far from competent to investigate it.

Whether we choose to regard our phenomena as telepathic or spiritistic, the intrusion of outside thoughts upon a person's mind involves some sort of displacement or dissociation of the latter's complete control of his organism, and this is true whether the result is a sensory or motor effect. A telepathic phantasm perceived by A and originated by B involves the intrusion on the stream of consciousness in A of the thoughts of B, and similarly the expression in A's motor system of B's thoughts involves the displacement of A's own control for the time, or the subjection of that control to the influence of B through the consciousness of A. The spiritistic hypothesis only substitutes the dead for the living subject in such an influence. We have no right to appeal to it until we have proved survival, but when it is proved, or supposed, the process of communication will not be inherently different from what is assumed in telepathy. The very conception of the supernormal in any sense whatever implies external action on the mind of the percipient of a kind which excludes normal functions in that respect, and when seeking for the supernormal that possibility has to be assumed. It at once excludes the conjurer's methods for anything but the mechanical feature of the phenomena. He may be granted a free hand in that territory, but he cannot infer from them the state of mind which the same acts would indicate in the normal person.

The psychic researcher often finds himself on the horns of a dilemma. The ordinary person who believes himself or herself to be honest and has interesting phenomena to give does not wish to be investigated as a fraud. On the other hand, he or she does not wish to be regarded as insane or hysterical. In many cases they are neither, save that they might be hysterical without implying what is usually understood by that term. Hence it is important that as investigators we should avoid misunderstanding on both alternatives. It is more important that we escape the suspicion of being fraud-hunters, even when we may happen to be on the alert for it. If we frankly recognise that the phenomena are likely to be mixed and to possess characteristics that ally them with genuinely foreign invasions and at the same time present the appearance of facts that are dubious, we shall be in a position to claim serious attention. There has been too much fraud-hunting and too little search for phenomena that may be perfectly genuine in spite of superficial appearances. Hence the importance of approaching them with the instruments of abnormal psychology. There will be no safety for the work until this position is taken regarding it.

I know no better case illustrating this than the one which I published as the Burton case of hysteria. Here was a modest and sincere young woman who was performing as a medium all sorts of physical phenomena. The credulous thought it all spirits. The sceptics thought it all fraud. Both were wrong. After having two physicians investigate it tactfully for more than a year they reported it as a case of hysterical simulation of mediumship. She was discovered to be doing the things herself, such as singing and whistling through a trumpet, or making a tambourine float in the air. The photographs showed that she threw the tambourine into the air. But she was in a somnambulic trance and knew nothing of what she was doing. We could not accuse her of fraud and we had no evidence that spirits were at the bottom of the phenomena. The ordinary observers came away with verdicts according with their prepossessions, some believing that the facts were marvellous and others that they were fraudulent. At this stage of affairs I became interested and the case offered me an opportunity to study it as one of hysteria and to vindicate the position which I took regarding the Palladino case, namely, that it should have been investigated as a case of hysteria. I spent some time on the case and had some forty sittings in all. I was not concerned with any search for the miraculous, but for the nature of the girl's subconscious activities. Before I got through I found four different types of supernormal phenomena and many hysterical simulations. She was not a fraud and the phenomena did not require spirits for their explanation, unless the actually supernormal phenomena which obtained require that hypothesis. But my principal object was to study the subconscious, and it proved to be one of those cases in which the majority of the phenomena had the ordinary mechanical explanation, whatever their near or remote cause, and yet were not fraudulent in any proper sense of the term. It was a lesson for the psychic researcher. He could evade the court of the magician and of the layman at the same time.

The first lesson to learn is perfectly inexhaustible patience with the cases with which you experiment. One or two experiments are worthless for any intelligent purpose, save perhaps to justify further experiment. The majority of people go to a medium, take one sitting and come away with the cry of fraud. They observe some little movement of eyes, hands, or feet, and jump to the conclusion that it is fraud. These same people, as soon as they are convinced that it is not fraud, swallow everything that comes through an honest person as if it were a revelation of infallible truth. But this is no way to decide any scientific issue. If you are even possibly dealing with a psychic you must assume that you are dealing (1) with abnormal psychology in which none of the ordinary criteria of genuineness apply ; (2) with subconscious phenomena which, whatever their ultimate cause, are sure to be interfused with any hypothetical supernormal that you can discover. Unless you experiment on these suppositions your judgment on the case is not worth a penny. Of course fraud is not to be treated with patience, but it is easy to decide the conditions under which your subject is likely to be a fraud. Those who freely surrender themselves to experiment under reasonable conditions, at least to start with, will always have to be dealt with as if honest, no matter what you fear or suspect. Assume that your subject is honest, and let him prove that he is a fraud. Do not assume that he is a fraud and let him prove himself honest. Your own conduct in such situations will quickly reveal your state of mind to the fraud and he or she will take a course that will make it impossible to prove them frauds. But assume that they are honest, keep proper records at the time, and form your opinions afterwards.

In working with mediums our first business is long experiment with accurate records. We may have to wade through oceans of twaddle or search through mountains of chaff, but we shall not be entitled to form any judgment about them until we do this. In the incipient stages of mediumship, whether accompanied by any hysteria or not—and by this I mean various forms of dissociation which are not necessarily manifested in mediumistic capacities—there is sure to be a large intermixture of subconscious material. It may not be subconscious memories reproduced in their exactitude, but rather the influence of subconscious functions on a stimulus which may come from transcendental sources but which may be unable to transmit its contents through the subconscious. There is here an infinite field for disappointment to those who come to the work with expectations of ready material in the way of evidence to be poured into their laps. Hence a man will have to experiment patiently, often for months and years, to reach the point where his material will be impressive or free from subliminal admixture, and it will never wholly escape this interfusion with subconscious products, even although they be nothing more that the linguistic form in which the information is conveyed. I have worked nine years with Mrs. Chenoweth and changes have been going on during the whole of that time in the nature of the trance and the contents of messages. At first the setting in which the supernormal incidents were buried was very large. That is to say, the chaff occupied a large proportion of the record. But as time and experiment proceeded different methods were adopted by the "controls"—I can speak in this manner on any theory whatever of the phenomena—and the trance was deepened, with the result that the subliminal content was decreased and the messages became purer from subjective influences. Four times in those nine years the nature of the trance was altered, and a considerable time was required to get good results after each change. There was always a period in which some disturbance in getting proper messages was caused by the deepening of the trance. Had I taken but three or four sittings with the lady I should have known nothing of the psychological development involved in all this patient experimentation.

Dr. Hodgson found the same to hold true with Mrs. Piper. The control with whom he started his work called himself, as you know, Dr. Phinuit. When the "Imperator group" appeared it took them four years to eliminate Dr. Phinuit, and in the course of it the work was completely altered in character, as any reader of the records may observe. But the main point is the time, patience and experimentation needed to bring all this about. It was four years. There is not one in a thousand of the experimental psychologists that would have spent six weeks on such work. But any man who goes into this investigation must prepare himself for just such experimenting or he will not get such results as he desires.

I will summarise. In the first stage of our inquiries it was necessary to direct the work in such a way as to satisfy the scruples of the conjurer and the student of normal psychology and to turn it over to the student of abnormal psychology. Here began the need of patience and perseverance in cases where the conjurer might demand the immediate production of phenomena. The student of abnormal psychology finds that he cannot exact results as he pleases, even when it is not a question of the supernormal, and hence his methods become the norm of investigation. There the problem rests to-day, and the investigator must learn that the qualities of patience and perseverance are the only key for unlocking the mysteries which would not yield to the confidence and arrogance of the conjurer. Years of time and thousands of experiments are necessary to decide even small questions or to make a very few steps in the progress of the work. The student that cannot face this fact may as well leave the subject alone. The discoverer of the future will be a man of infinite patience, and with this must have the character of a moralist in order to achieve his ends.

RELIGION AND THE SEX-INSTINCT

BY ROBERT H. THOULESS, M.A.

IN the *American Journal of Religious Psychology*, before its disappearance during the war, certain articles appeared written by Mr. Theodore Schroeder, on the Erotogenetic Theory of Religion. As the connection between sex and religion is a subject which is attracting an increasing amount of attention amongst those who are interested in the critical study of the psychological roots of religion, a discussion of a theory which asserts this connection in an extreme form may be found to be not without interest.

Mr. Schroeder states his conclusions with a dogmatic certainty which strikes on modern ears like an echo of ecclesiastical anathemas in the Middle Ages. He accuses those who disagree with him of a strong will-not-to-believe and a sex-phobia. Now this is hardly fair. Any person convinced of the truth of his own opinions is inclined to credit his opponents with an irrational prejudice, but to state this conviction is no argument for the truth of his own view. A psychologist would rather suspect it as a possible sign of a repressed doubt of the stability of his own exposition. It is no argument for the erotogenists' theory to say that its opponents must have a sex-phobia. It is no better than would be the possible retort of its opponents that its upholders suffer from a sex-obsession. Such abusive language on both sides can only serve to obscure the truth, wherever it may lie. We must protest that it is possible to doubt Mr. Schroeder's theory without having a sex-phobia. It must stand or fall, like any other theory, by its scientific sufficiency.

It would indeed be neither a sufficient nor a helpful argument to say that the theory was disgusting. The business of science is to inquire whether it is true. To the religious man any account of religion which is completely naturalistic must be revolting. But if the naturalistic theory of religion is the true one, then the sex-instinct is as respectable an origin as any other. Nothing but our conventional repression of sexual matters makes us suppose that it is not.

No one will deny a certain relationship between the phenomena of sex and those of religion. The dispute is about the significance of this relation, and also about its closeness.

On the first point, it must be noted that anthropological evidence brought forward by the erotogenists cannot be taken as proving their position or even of rendering it probable, unless it is not only consistent with the erotogenetic theory, but also inconsistent with any other theory of this relationship. Mere weight of more or less relevant instances is of no value unless it fulfils the conditions of logically valid proof. This is obvious. It is mentioned here only because it is a point which Mr. Schroeder appears to neglect. He brings forward a mass of anthropological evidence, which is of no value as proof of his position, because it is not inconsistent with views on the relationship between religion and sexuality, different from his own. Nor does he try to show that his facts are consistent only with his own theory. Apart from his deductive reasoning, which will be discussed later, his method appears to be to hurl facts at his readers, mingled with dogmatic statements of his own opinions, trusting that the mass of his facts will blind them to their irrelevance to the point at issue.

The closeness of the relationship between sex and religion is a question needing further careful and unprejudiced research. We may agree with Mr. Schroeder that it has often in the past been minimised by an unscientific prejudice against sexuality. On the other hand, it is possible that the tendency of certain modern psychologists to reduce everything to terms of sex may be a symptom of a prejudice no less unscientific than the sex-phobia they so loudly deplore in their predecessors.

We will divide the possible theories on the problem of the relationship between religion and sexuality into three classes:

1. That religion is conscious sexuality.

That this is true universally has never been asserted, so we need not discuss it.

2. That all religion is in its origin, sexuality. It is not so consciously in most cases, but it started in the past as conscious sexuality in the phallic religions. This is Mr. Schroeder's view.

A few quotations may be given to make his conclusions clear:

> " All religion in its beginning is a mere misinterpretation of sex-ecstasy, and the religion of to-day is only the essentially unchanged evolutionary product of psycho-sexual perversion." (" Adolescence and Religion," *Journal of Religious Psychology*, Vol. vi.)
>
> " The differential essence of religion is always reducible to a sex-ecstasy. When frankly avowed as such, then the apotheosis of sex results in some form of phallic worship. When not recognised as a sex-ecstasy, or not frankly avowed as such, the erotic origin of religion is revealed by an extravagant over-valuation of the sacredness or sinfulness of some sex manifestations. In this form the sex-ecstasy becomes religious ' experience ' by being misinterpreted as the direct and immediate perception of the mysterious-super-physical—' transcendental.' " (*Journal of Religious Psychology*, Vol. vii., p. 23.)

3. The commoner view, held by all psychologists who do not agree with the erotogenists, is that there is no identity between religion and sexuality, though there is a certain connection between some phases of the religious life and the sex-instinct.

Quotations might be multiplied, but one from *Psycho-analysis*, by Ernest Jones, will illustrate what is meant:

> "The commoner opinion is that the instinct merely adds some of its own peculiar feelings and impulses to religious and artistic tendencies that are already present in the mind and which originate in other sources."

It has already been pointed out how useless is a great volume of evidence quoted in favour of the erotogenetic theory, while no attempt is made to show that it excludes any such view of the connection between religion and sex as that quoted above. His neglect of this fact is a fatal defect from which the whole of the empirical part of Schroeder's argument suffers.

Three points may be considered as examples of phases of the religious life showing a connection with the sexual life:

(1) The frequency of language drawn from the sexual life in the writings of the mystics.
(2) The close contiguity in time ordinarily observed between conversion and adolescence.
(3) The high value placed on chastity by many religions.

These, indeed, show a connection between religion and sex which no student of the psychology of religion can afford to neglect. But when we go further and try to use such facts as these to support a theory of the identity of sexuality and religion, we find them totally unable to bear such a burden. A closer examination serves only to make the facts less impressive than they appeared at first.

The mystic finds that language is powerless to describe his experiences, so he uses symbolism drawn from all parts of life. It is true that he may speak of the search for a divine lover, of the betrothal and of the spiritual marriage; but he may also speak of listening to celestial music, of returning to a divine Father, of tasting or of smelling.

Rolle, who says that Love "suffers not a loving soul to bide in itself, but ravishes it out to the Lover, that the soul is more there where it loves, than where the body is that lives and feels it," says also: "Thou art a savour well tasting, sweetness well smelling, a pleasing odour, a cleansing heat, a comfort endlessly lasting." Elsewhere he says: "Song I call, when in a plenteous soul the sweetness of eternal love with burning is taken, and thought into song is turned, and the mind into full sweet sound is changed." Similar extracts from other mystics could be given showing the same bewildering richness and variety of metaphor, which breaks through the rigid limitations of our theoretical systems and shows its origin to be rather in the multiplicity of the experience of ordinary life than in any single dominant idea.

The close connection in time between conversion and puberty has been worked out by Starbuck. He shows that conversion takes place, almost exclusively, in the years between ten and twenty-five. The law he formulates is that "conversion and puberty tend to supplement each other in time rather than to coincide; but they may, nevertheless, be mutually conditioned." But the age of puberty is much more than the beginning of self-conscious sex life. It is also the time of assuming new responsibilities, of increased physical vigour, and of a distinct change in intellectual processes. For the first time the mind questions what has been received on authority, and prefers to feel itself more independent. All these changes, social, physical, and mental, which accompany adolescence may well make us pause before asserting that the known facts are sufficient to justify us in connecting puberty and conversion in such a manner as to make the latter merely a crisis in the sex life.

It is true also that most of the higher religions value chastity highly. From the onlooker's point of view this valuation seems to be extravagantly high, as the sexual act is normal and necessary to the continuance of the race, so that it cannot reasonably be regarded as sinful in itself. But this fact becomes of less importance to the subject in hand when we realise that in this respect the sexual instinct does not stand alone. The repression of other instincts is also regarded as of high religious value. Meekness and fasting are considered signs of the highest life as well as chastity. But meekness is the repression of the instinct of aggression, and fasting is the repression of the instinct of nutrition. The freeing of the self from all desire, not merely from sexual desire, is a factor in Christianity, Buddhism, and many other religions.

It is, however, not necessary to labour the inadequacy of such facts as these to bear the weight of the erotogenetic theory, as they are not the supports on which Mr. Schroeder mainly relies. His main support (and one which he himself seems to consider quite satisfactory) is drawn from two deductive arguments. His anthropological evidence is rather of the nature of a subsidiary prop. It will be shown later that the evidence adduced is not able to serve a useful function, even in this humble capacity. The deductive proofs of the theory will be discussed first.

First he "proves" that the phallic religions were, in time, prior to any other form of religion. This follows from Spencer's formula of evolution, which asserts a progression "from an indefinite incoherent homogeneity to a definite coherent heterogeneity."

If we admit that phallic religions are earliest in point of time, he further proves his hypothesis "that all religion in its beginning is a mere misinterpretation of sex-ecstasy" from a generalisation which is the psychological analogue of a well-known embryological formula. This generalisation is that "psychic ontogenesis is but a recapitulation of phyletic psychogeny."[1]

Even if both these formulæ were true, so far as was known, there would appear to be a fallacy in their use for deducing the facts which Mr. Schroeder wishes to deduce from them. Being mere empirical formulæ, and not laws founded on direct evidence of causation, what reason have we for supposing that they hold good except within the limits of the observations on which they were founded? Can they be used for the deduction of new facts which must necessarily be outside those limits?

It is true that valid inferences may be made from certain general laws to certain facts beyond those on which the general law was based. The general law must, however, be causal and not merely an empirical law. We must, moreover, be able to see why the particular case in question should fall under that law. The further removed in kind the inferred fact is from the facts on which the law is based the less convincing is the inference. Thus we may apply a law deduced from observations on substances in the gaseous condition to substances in dilute solution, as they have a property in common—that the interaction of the molecules of the gas and solute respectively may be neglected. Our deductions will be valid only so far as the facts deduced depend on this common property. Such a law would, however, be certainly invalid if it were applied to a substance in the solid state, while no sane person would dream of trying to apply it to anything so totally different as, let us say, a mental condition.

If we try to apply these criteria to Mr. Schroeder's two generalisations, we see how hopelessly his inferences fail to conform to the conditions of validity. Let us consider the use he makes of Spencer's homogeneity formula.

First we must ask on what kind of evidence it can rest. It is obviously not an axiom because it can be doubted. Nor is it a causal law, because Spencer considers that it is true only for the period of

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[1] In his article entitled "Adolescence and Religion" (*Journal of Religious Psychology*, Vol. vi.), Mr. Schroeder uses this argument in the opposite direction, *i.e.*, to prove from the sexual origin of existing religion the chronological priority of the phallic religions. In a later article, however, in Vol. vii., called "The Erotogenetic Interpretation of Religion: its Opponents Reviewed," he uses it in the way here discussed. In his criticism of the Rev. G. B. Cutten, he says: ". . . The Rev. Mr. Cutten does not see that, 'if religion and sex in evolutionary development have had a direct and intimate relation,' and, as Haeckel has shown, the life of the individual is a 'compressed reproduction' of the life of the race, then it must be that, as in the immaturity of the race, so now and forever in the immaturity of the individual, religion must bear to sex 'a direct and intimate relation'" (p. 32).

Evolution, which is followed by a period of Dissolution during which the contrary law is true, and the progression is from heterogeneity to homogeneity. It must, therefore, at best be merely an empirical formula. If we further ask on what facts it is based we find that they are drawn from physical and physiological phenomena. Spencer's application of it to mental facts is little more than a pious hope that it may be found to apply there. Yet Mr. Schroeder unhesitatingly uses it to deduce facts in that most obscure of all sciences—social psychology. Could we have a more flagrant outrage on the requirements of logic ?

So far we have assumed that the generalisations are themselves rigidly true. That is not, however, the case. It will be remembered that Spencer's formula states that in evolution a progression takes place "from an indefinite, incoherent homogeneity to a definite coherent heterogeneity." It would waste time to expose again the hollowness which lies behind this pretentious formula, as that has already been done by Professor Ward in his *Naturalism and Agnosticism*, Lecture VIII. Professor Ward shows that there is no such law as Spencer's law of the instability of the homogeneous—"the absolutely homogeneous must lose its equilibrium, and the relatively homogeneous must lapse into the relatively less homogeneous." ("First Principles," Sec. 155.) Spencer can indeed point to plenty of examples of systems becoming less homogeneous, but he could equally well have found examples of the opposite change taking place. "Homogeneity is not necessarily instability. Quite otherwise. If the homogeneity were absolute . . . then the stability would be absolute too." (*Naturalism and Agnosticism*, p. 217.) It is astonishing to find this outworn formula turning up again as a dogma to save the erotogenists the necessity of proving their theories by a scientific method.

Naecke states that phallic religions are degenerations of the love of God and not part of the original foundation of religion. Because he also admits that it is impossible to prove the late origin of phallic religion, he is accused by Mr. Schroeder of "mere dogmatism." But this is absurd. The question of what was the earliest form of religion is one which cannot be answered. It is unlikely that it will ever be answered. We can no more prove that the earliest religion was not phallic worship than we can prove that it was not a pure Monotheism. We are not, for that reason, compelled to believe either of these propositions until some much more cogent evidence is brought forward.

If the first generalisation is insecure, the second one—that "psychic ontogenesis is but a recapitulation of phyletic psychogeny"—is not less so. Our knowledge of phyletic psychogeny is so fragmentary and speculative that no serious anthropologist would suppose that it is sufficient to base such a statement upon. Any force it possesses it therefore derives from the fact that it is analogous to the embryological formula that the development of the individual is but a recapitulation of the development of the race.

Even if this were rigidly true, an analogy which would apply the same law to psychical development would be unsound, because we would be applying a principle derived from the study of one class of facts to facts of a totally different kind.

It cannot be argued that the principles of psychical development can be inferred directly from the principles of physiological development because psychical and physiological events are parallel. This argument ignores the fact that we are talking about physiological development in the embryonic stage and about psychical development when the organism is nearly full grown.

Actually, the embryological formula is a mere approximation. More detailed study of the development of the embryo shows that there is no exact recapitulation of racial development.

Mr. Schroeder's statement that "psychic ontogenesis is but a recapitulation of phyletic psychogeny" is, therefore, no more than an analogy invalidly drawn from an inaccurate formula. It is not a law and cannot be used as the basis of a deduction.

We now turn to his observed "psychogenetic facts of religious ontogeny." These are prefaced by the remark that if "there exist special ceremonies of religious import, which in past ages have been the accompaniment of adolescence, this would suggest that the beginning of *self-conscious* sex life marked the beginning of the religious life."

We may here observe that facts which merely "suggest" that the religious life and the self-conscious sex life start at the same time do not carry us very far towards the erotogenetic theory.

But does the fact that there exist special ceremonies of religious import at the period of adolescence suggest even this? Religious ceremonies accompany all the important points in the individual's life, so it is not surprising to find them at the time of adolescence. There are religious ceremonies at birth and at death, but this does not suggest that the religious life starts at these times. Actually one is struck by the smallness of the religious element in the initiation ceremonies quoted.

In favour of his contention Mr. Schroeder quotes several initiation ceremonies of females with little religious significance, and also cases of premarital connection with idols amongst Roman women and promiscuous connection in temples amongst worshippers of Venus and the Hebrew worshippers of Baal-Peor. After one of these he makes the characteristic remark: "This adolescent rite was, no doubt, the origin of sacred prostitution, vestal virgins and nunneries." This is an example of the way in which he allows imaginative and dogmatic statements to take the place of scientific proof. The origin of nunneries in these sexual practices of Baal-Peor or Priapus is too absurd to be accepted on no better evidence than Mr. Schroeder's confident "no doubt."

It is not quite clear, even if it could be shown that the religious life and the sex life start at the same time, how that would be of value to Mr. Schroeder's theory. That two things start at the same time does not prove their fundamental identity. In itself, however, the statement that the religious life begins at adolescence does not appear very probable. When we try to apply it to the religious life of the present day it is in manifest contradiction with the facts. In Starbuck's records there is abundant evidence that the religious life may precede adolescence.

In an earlier essay (*American Journal of Religious Psychology*, Vol. iii.), Mr. Schroeder makes a distinction between religion based upon personal religious (subjective) experiences and mere sympathetic imitation, and refuses the name of religion to the latter. Presumably Mr. Schroeder would say that the religion of childhood is mere sympathetic imitation. Now there is a very distinct difference between the religion of childhood and the religion of adolescence. The intellectual, critical attitude towards dogma is absent in the former, and the emotional content of adolescent religion is greater than it is in childhood. But, on the other hand, we do not find that the religion of childhood is invariably a mere acceptance of formulæ on authority, without emotional value, as it would be if it were mere sympathetic imitation. It is true that a large number of the accounts of childhood religion appear to be of this description, as does the religion of many adults. At the same time, in many cases the religion of a child has all the marks by which we would judge that an adult's religion was founded on personal experience. We must notice, too, that this is in spite of the fact that most of Starbuck's subjects were of a Protestant type, which attaches a high value to conversion and would, therefore, tend to minimise the worth of preconversion experience.

The following examples are from Starbuck's *Psychology of Religion*:

> "F.—'I do not remember the time when I wasn't vitally concerned in religion.' F.—'I think religion began with my birth.' M.—'I always felt myself a child of God.'"
>
> "M.—'I loved Jesus with all the fervour of a child's heart.' F.—'I had implicit confidence in God's love for me.' F.—'I always asked God to do things for me, and promised Him things if He would answer my prayer.'"
>
> "'My parents' instruction took root early. I was a religious child; religious ideas were from the first interesting and attractive to me. I was spontaneously grateful to God, and really loved Him.'"

"F.—'Up to fourteen, I believed that a real live person, God, hovered over me constantly, and was conscious of my every act.'"

Empirical evidence does not bear out the contention that there is no real personal religion before adolescence. Although the absence of personal religion in childhood would be no proof of the erotogenetic theory, its presence would seem to be absolutely fatal to that theory. An equally damaging fact is that the theory requires that in old age real religion should be absent. This is entirely contradicted by the facts. W. James says in *The Varieties of Religious Experience*: "The religious age par excellence would seem to be old age, when the uproar of the sexual life is past."

The evidence drawn from the phallic religions is of great interest in any discussion of the origins of religion. It is, however, irrelevant to the theory in question, unless it is certain that the phallic religions were themselves expressions of the sexual instinct of the worshippers. This appears to be assumed without proof by Mr. Schroeder. There is, however, another and a much more probable explanation. The religious rites of a people dependent on agriculture are mainly connected with the needs of their herds or crops. What more natural symbol of the fertility on which their prosperity depends could be chosen than the generative organ of their domestic animals?

This may or may not be the true explanation of the phallic religions, but it is certainly a possible one, and it appears to be more probable than Mr. Schroeder's. However, while it remains possible it makes any appeal to the phallic religions as proofs of the erotogenetic theory completely useless, since such appeals could only be of value if the reference of phallic religions to the human sexual instinct were beyond doubt.

The examination of Mr. Schroeder's articles leaves us impressed with the weakness of the argument for the identity of sexuality and religion. His deductive arguments are logically unsound. The anthropological evidence is mostly irrelevant and quite incapable of bearing the burden which he places upon it. Nor does the argument seem capable of much improvement. A sounder naturalistic view of the origin of religion would surely derive its experience from all the repressed instincts, of which the sexual instinct is only one.

There is a possibility, however, that there is an inherent unsoundness in the naturalistic method of explaining the phenomena of the religious consciousness. Possibly its communion with God is an action between the mind and something objective outside it. If that were the case, the repression of the sexual and other instincts might still determine the form and colour of many of the phenomena of religious experience, but it could not explain them.

THE PRESENT CONDITION OF INDUSTRIAL PSYCHOLOGY[1]

By Frank Watts

§ 1

The Necessity for Sound Methods of Development

IT may be argued that the attempt of the psychologist to apply his special method to the elucidation of the problems which concern the human element in industry has been productive so far of greater good to psychology than to industry. There are several reasons why this should be so, not the least being that here the psychologist has been at work in a somewhat alien field, though he has been one of the last to realise it. The tendency to mistake his trim and tidy laboratory for the tangled world at large has influenced him more often than he has suspected. It is a great gain, however, to have become conscious of this defect. Obviously, little headway will be made by industrial psychology as an applied science unless its disciples understand not only the methods of their particular science, but something also both of the every-day difficulties of management and of the healthy aspirations of labour. If, therefore, the industrial psychologist is to come to real grips with those industrial problems which his method alone will permanently solve he must lose touch with neither of these parties, whose estrangement is a root cause of our social unrest.

Forgetful of this precaution, many of the pioneer workers in industrial psychology have mapped out for themselves a greatly over-simplified programme of experiment, and in the first flush of enthusiasm have promised much more on behalf of our subject than they may ever be able to perform. Expectation in some quarters has consequently been fanned into premature excitement. But real advance will only be possible when it is understood that the psychologist aspires to play neither the combined part of tipster, trainer, and jockey for those who wish to get ahead in the race for wealth, nor that of patent medicine vendor to those who want quick remedies against ca'canny and discontent.

For the present the industrial psychologist asks for nothing more than to be left alone to work at his problems uninterruptedly and in his own way. He fully realises that his initial efforts to apply his particular method have raised as many problems as he has solved, and his mood is one of optimism, well-chastened.

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[1] A paper read before the Psychology Section of the *British Association for the Advancement of Science* (Edinburgh, 1921).

§ 2

THE SCOPE OF INDUSTRIAL PSYCHOLOGY

It will probably be agreed that it is the function of an applied science to explore the conditions of efficiency in the sphere proper to its application. Pure science may be perfectly disinterested, but applied science seeks to be useful. Industrial psychology will attempt, therefore, to show how the laws underlying the behaviour of living creatures, which pure psychology may establish, can be exploited in industry to human advantage. In other words, it is the aim of the industrial psychologist to seek to improve production through every possible increase in the physical and mental efficiency of those engaged in it. His subject is the economy of the human element in industry, and it will be his endeavour to render every advance in the use of machinery consistent with the permanent well-being of those by whom it is operated.

Now the task of the industrial psychologist would be immensely simplified if it were possible for us to analyse satisfactorily and measure separately all the factors which are at work in the simplest human reaction, but at present we know too little about human behaviour to permit this. As it is, many of the attempts to introduce psychological improvements into industry have issued from an altogether inadequate understanding of the broad facts of human nature. Too frequently, of course, the aim has been to increase production without taking into account at all the point of view of the workers, with the result that every reform initiated to-day from within the ranks of management finds itself obliged to face and overcome the prejudice engendered by at least a hundred and fifty years of class antagonism which might have remained sleeping.

But merely to recognise the existence of the human element in industry is not enough ; the difficulty is to take full cognisance of all its possible manifestations. Even to speak of our subject, as is commonly done, as the study of the human machine in industry leads us frequently to neglect those aspects of it which cannot yet be brought within the category of the mechanical. Man *is* a machine, but in the present state of our knowledge we should do well to consider him as something more. For just as the psycho-analysts have shown that our memories do not fade uniformly in accordance with the simple mechanical laws popularised by Ebbinghaus (which would permit us to plot smooth curves of forgetting from the details furnished by statistics of the recency, frequency, vividness, and primacy of the original sense impressions), so further research will, I believe, show conclusively that the reactions of the average worker in industry are much more subtle than is assumed by the industrial psychologists of the American behaviourist school.

Happily we are now more or less aware that when we are dealing with such mental functions as attention, memory, intelligence, and skill there is always present an incalculable something which is likely, unless we are careful, to make sport of the most cautious of our generalisations. In other words, there are moods and motives active in every psychological experiment which it is extraordinarily difficult to isolate and control. We may attempt, for example, to measure a person's acuity of sight or hearing, but, unless he is "at home" to us all the time we are doing so, our results will be unreliable. We may proceed to estimate his intelligence, but, unless our test material interests him to the full, again we shall be in danger of drawing wrong conclusions about him. Yet it is safe to say that a great deal of the experimental work in the sphere of industrial psychology done previously to the last four or five years has been carried out on the assumption that such singularly elusive mental factors as we are only just beginning to understand scientifically have been either constant or else negligible quantities. No more fertile source of error could have been left unexamined. What I shall say will, I hope, amply illustrate this.

§ 3
The Possible Divisions of Our Subject

The efficiency of the human element in industry may be studied from four different points of view, as it is affected by (1) conditions of work, (2) methods of work, (3) suitability of work, both individually and generally, and (4) incentives to work. While, however, each of these divisions may be studied separately, it should be understood that industrial efficiency is an all-round efficiency, and that to hope for efficiency in any one direction while neglecting others is to court disappointment. Nevertheless, but for the purposes of this paper only, I propose to deal briefly with each of these divisions in turn.

§ 4
The Influence of Working Conditions on Efficiency

It is possible to say to-day that considerable advance has been made in the study of the influence of environment on working capacity. In the past it was considered enough to condemn only such working conditions as were responsible for gross bodily discomfort and obvious fatigue, and to dismiss the psychological factor as negligible. Thus, the physiologist, when called in to investigate the extent to which working conditions were harmful, thought at first to base his conclusions wholly upon evidences of fatigue which might be derived from physical tests. Fatigue, if present, would show itself, he argued, in muscular changes, in variations of blood-pressure and pulse-rate, in diminished acuity of hearing and vision, and so on. To the astonishment of most persons, however, the work of a number of trained investigators proved that it is difficult to estimate the degree of anyone's fatigue from an examination of his bodily condition. One physiologist, for example, who conducted a lengthy research into this problem, though beginning his reports with an elaborate description of the apparatus and tests which he intended to employ for the discovery and measurement of industrial fatigue, based his main conclusions upon the statistics of output of individual workers—an eloquent testimony to the value of his instruments!

As soon, in fact, as we attempt to define and measure fatigue it turns out to be the most slippery of subjects. There is no bodily condition which varies constantly with it. Not that psychological tests for it are any better. The truth is that there is nothing in the nature of a fatigue test that is at all satisfactory; the very knowledge that tests are being employed for its discovery is sufficient to produce in the persons tested an attitude of mind and a consequent reaction which are different from their normal attitude and reaction towards their work.

This being so, it has been suggested that the output figures of workers may be used as fatigue-indicators. These figures, of course, are very useful in many cases, but where the worker is a machine-operative they reveal not only something of the efficiency of the worker but also that of the machine. In most cases, moreover, where comparisons are made between one set of figures and another, there are always variations in the physical environment—in the heat, the humidity and movement of the atmosphere, in the intensity and quality of the illumination, in the volume of noise, and so on—which need to be taken into account. Independent of these, again, there are variations not less important in the social environment which play their part too in influencing effort by inducing anxiety or hope, rivalry or despair. In the present state of our knowledge it is manifestly impossible to calculate the effect of these factors on working efficiency.

But though the notion is now thoroughly exploded that we may get reliable measures of working capacity by means of physiological or psychological tests, much may be done in the way of investigating separately the part played by the various factors which contribute to it.

Thus it is now being shown by the Industrial Fatigue Research Board in this country and by the Public Health Service in America that the effect of physical working conditions in factories is considerable. Thus, artificial light has been shown experimentally to be less favourable to output than sunlight, confined and dry still air less stimulating than the moving air of well-ventilated workshops, noisy surroundings more tiring than quiet ones, and labour without cessation less productive than the same amount of effort interspersed with short rests. A few figures may emphasise some of these points.

A gradual increase in the output of silk-weavers occurs between December to March, when the days are lengthening out and the necessity for artificial light begins to disappear. "Under artificial illumination production falls, even if electric light of sufficient intensity is provided. The magnitude of this fall is of the order of 10 per cent. of the daylight value of the rate of output." [1]

A New York Commission on Ventilation found that out of 215 records of temperature in workshops 73 per cent. were above 73° F. and 29 per cent. above 80° F., and yet experiments with voluntary workers paid on a piece-rate scheme have shown that 63 per cent. more typewriting can be done at 68° F. than at 75° F., 15 per cent. more physical work of a heavy kind at 68° F. than at 75° F., and 37 per cent. more than at 86° F.[2]

"In a tin-plate factory the introduction of a six-hour shift increased the hourly output by 8·3 per cent., and the introduction of a four-hour shift increased it by 11·5 per cent., as compared with the hourly output of an eight-hour shift." [3]

But illustrations might be multiplied indefinitely if time permitted. The point is that it is being shown beyond all possibility of dispute that, other things being equal, as factory work is made more and more to resemble the open-air work of the fields the greater becomes the efficiency and contentment of the workers.

§5

THE ECONOMICAL APPLICATION OF ENERGY DURING LABOUR

There can be little doubt that the attempts to secure greater industrial efficiency by improving working conditions have benefited, and must continue to benefit, everyone concerned. This is mainly because the increased quantity and better quality of work have followed naturally as a consequence of the greater well-being of the workers. Indeed, in this connection the golden rule would seem to be that the best way to improve work is to improve the worker.

Everything that is implied, however, in such a rule as this has not always been thoroughly grasped by those who have taken up the highly important task of eliminating the unnecessary fatigue which is due to faulty methods of work. In recent years increasing attention has been devoted to refining and, where necessary, remodelling the working methods of the manual labourers, skilled and unskilled. The amount of energy wasted in clumsy or useless bodily movements is often amazing. Notoriously, the movements of the expert worker are clean and graceful.

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[1] Report No. 9 of the *Industrial Fatigue Research Board* (His Majesty's Stationery Office), 1921, p. 55.

[2] *Atmospheric Conditions and Efficiency*, by Prof. L. Hill (Manchester University Press), 1920, p. 12.

[3] *Mind and Work*, by Dr. C. S. Myers (University of London Press), 1921, p. 73.

The recognition of such facts as these has led to the detailed study of bodily movement during labour. As is now well known, special apparatus has been devised for timing, photographing, and reproducing —at a slower rate if required—movements which would be the better for closer examination. By this method it can easily be demonstrated that much of the activity of inexpert workers is wasteful. Where it is wasteful is also made patent. The consequence of this new method of study is that the industrial psychologists have witnessed the rise to power of an anti-waste party in their midst pledged to the ruthless elimination of every form of superfluous energy. Every movement made during work which is in excess of bare necessity is being challenged. Encouraged by Mr. F. B. Gilbreth's demonstration of the utter uselessness, as far as the visible product is concerned, of thirteen out of every eighteen of the bricklayer's ordinary movements while he is at work, the apostles of motion-study have declared war upon every extravagance and luxury of movement.

Elsewhere in a recently published book [1] I have paid tribute to the incomparable pioneer experimental work of Mr. Gilbreth in this connection. But because Mr. Gilbreth has perfected a really beautiful technique of motion-study this does not oblige the industrial psychologist to accept without question his views *in toto* as to what constitutes extravagance in movement. There may conceivably exist two different policies as to what ought to be our procedure in the attempt to economise here. We may aim at cutting down the time period of every complex action through the elimination of all but the obviously indispensable part-movements of which it is composed, the result of which in the long run must be to turn the worker into a joyless automaton, or we may concentrate upon the discovery of the movements and rhythms which are both pleasurable and essential to efficiency, and teach them to those who are eager to learn them.

To adopt the former policy would be like concentrating on nutrition as the sole factor worthy of consideration in feeding, and to recommend predigested tabloid nourishment universally because of the enormous amount of time wasted in eating. But eating to satisfy appetite is, after all, a pleasurable occupation, even when what we eat is largely innutritious. Certain of the movements which are made during labour may also be pleasurable, though really useful in spite of their apparent futility. Suppose, however, that among the food experts there arose a Gilbreth to declare that there was only one right way of moving the jaws in taking tabloid nourishment, and that all other ways involved a ridiculous waste of energy, we should have a state of things roughly analogous to that which exists to-day in the sphere of motion-study. To say that there is only one right way of making a set of human movements is to assume that all individual differences of temperament, ability, or physique are entirely negligible factors. If this is really the view of Gilbreth it is a mistaken one.

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[1] See *An Introduction to the Psychological Problems of Industry*, London, 1921.

It is certainly to be feared that the Gilbreth method, in the hands of unsympathetic experts who are destitute of psychological training, will lead to a cheeseparing economy of movement instead of to that policy of inspiration which alone will produce the best results in the long run. Let us hope, therefore, that, so far as motion-study is concerned, the policy of discovering how movements may best be grouped together so that the worker's efforts will produce the maximum of work and of pleasure at the minimum cost in bodily exertion will be given a good trial in the near future.

§ 6

VOCATIONAL GUIDANCE AND SELECTION

I have already suggested that the efficiency of the human element in industry depends as much upon the healthy mind as upon the healthy body. For some time now it has been clear to many persons that the frequent incompatibility of aptitude and occupation is responsible for a great deal of our industrial discontent and inefficiency. It is, indeed, a commonplace to say that all adolescents would be happier if enabled to discover early those forms of work which are best suited to their capacities. In many a case the stock phrase, "a square peg in a round hole," expresses only too adequately the present situation.

The common assumption which lies behind this well-worn figure, however, that there is awaiting each and all of us, if we have not already found it, an occupation into which we may fit ourselves perfectly without further occasion for worry is misconceived. It is doubtful whether there will ever be found an unlimited supply of perfectly square holes predestined for occupation by perfectly square pegs. What is probable, rather, is that since the industrial revolution began we have all remained more or less square while the holes which we are intended to fit have become more and more round. Some of the holes, in fact, have become unfit for human beings altogether.

The practice of scientific vocational guidance and selection, once it is begun on a big scale, will soon show, I believe, the necessity of suiting the job to the worker as well as the worker to the job. The vocational psychologist, therefore, will not always be expected to achieve the impossible task of finding workers for those more mechanical occupations of industry in which their aptitudes may be exploited indefinitely without detriment to their humanity. Nevertheless, this has been the work in the past for which many employers have valued him. If to-day he is asked to assist in this work we must be under no misapprehension as to what is the chief qualification for this kind of occupation; it is not so much the possession of some special aptitude as it is the general lack of intelligence, for here, at any rate, intelligence usually makes for discontent and inefficiency.

It is clear, of course, that in occupations which are not entirely of a routine nature the more intelligence one possesses the greater the probability of one's success. Already the first approximations have been made towards a satisfactory method of measuring intelligence, though, in the opinion of some, little beyond a beginning has been made in this highly important work. Greater progress will probably be registered when it is recognised that the intelligence test as at present constituted measures but one type of capacity (though this type is not without considerable importance). Our great difficulty is to construct tests which make due allowance for the variable factors of education and experience.

The method most popular at present among mental testers is to estimate intelligence by the speed and accuracy with which one can tackle problems based solely on what may be legitimately considered common knowledge. This was the method adopted by the American psychologists for the mental examination of army recruits during the recent world war. Undeniably, great success attended their use of the method. Nevertheless, the usual form of examination employed does not allow persons of widely different types of training to adapt themselves to the tests with equal success. The artisan and the general labourer cannot be expected to compete on even terms with the bank clerk and the typist in a written examination where speed of response is essential. Moreover, it is probably unsafe to assume that the best intelligence is that which works most rapidly in arriving at its conclusions. Furthermore, frequent disagreement will often arise when it comes to deciding what is and what is not common knowledge.

All this means that we are coming to the conclusion that the forms which intelligence takes in such a complex civilisation as ours are too many to be adequately measured by any one sort of test.

This is not to say that we may dismiss the question as to what constitutes specific aptitude as irrelevant. It means that aptitude and intelligence in non-routine work form an inseparable unity which we should do well to measure together. I am aware that here I am not expressing the more general belief, which is that we ought first to seek to analyse aptitudes into what may be taken as their psychological elements, and then measure them separately. My own experience has led me to the view that this sort of analysis is usually unsatisfactory. There is reason to suspect that each aptitude is energised by a specific interest which eludes present analysis. After all, the occupation for which we are best fitted is the one which makes a definitely concrete appeal to us. We are not so much made for it by reason of our excellence in certain sense departments, or in memory, attention, or reasoning power conceived abstractly. We are suited to it because it stimulates our intelligence and interest in a way no other occupation can. The test, therefore, which is intended to gauge our powers in this province must make the same sort of appeal as the occupation if it is to be successful. Industrial psychology has no use whatever for the type of test which aims at providing us with measures of memory by means of test-scores with nonsense syllables, of concentration by means of our results in adding up or crossing out figures, and so on. Aptitude in such tests may have very little relation to aptitude in a concrete occupation.

It is because intelligence becomes less and less a general power and more and more specialised as we grow older, and the pressure of our experiences and interests exerts a moulding influence upon it, that the problem of constructing an increasing variety of intelligence tests of a definitely specific nature is urgent.

What we seem, then, to be moving towards in the sphere of vocational psychology is the construction of two types of test, one synthetic for the diagnosis of those higher forms of aptitude which are saturated through and through with intelligence, and the other analytic for the diagnosis of routine aptitude of a non-intellectual kind. It is to be feared, however, that until we understand thoroughly the nature of interest, or the dynamics, as we may say, of aptitude, progress in the construction of the former kind of test will be slow.

§7

The Problem of Energising Labour

It may safely be said that most of the problems which we have so far been discussing could be left to solve themselves if only we could solve once and for all the master problem of providing men and women incentives to work which would permanently be both health-giving and productive.

Experiments that are genuinely psychological in nature are continually taking place with this object in view in the world of industry, but on so large a scale, and with so many factors influencing the results still unrecognised and, therefore, uncontrolled, that there is room for considerable difference of opinion as to the extent and significance of their success or failure. Experiments with different methods of wage payment, systems of management, co-partnership schemes, municipal enterprises, communistic ventures, nationalised undertakings, and so on, have produced a huge mass of evidence which, in the absence of clear principles of interpretation, is usually evaluated according to prejudice.

Some have doubted whether the psychologist can hope to do any good by venturing into so controversial a field. But the growing realisation of the fundamental importance for the understanding of human behaviour of that branch of his subject which deals with instinct has suggested to many students that here we may find a criterion by which to estimate the comparative value of the methods relied upon to-day to secure the willing service of labour. If it is true, as more and more are inclined to believe it is, that man remains most healthy and vigorous when his behaviour is in harmony with the well-ordered promptings of his instinctive nature, and that mental unrest springs from thwarted instinct, then we have a clue with which to approach the study of the different types of incentive which have been employed from time to time. Thus we shall understand why the small shopkeeper and the peasant proprietor work harder than the day labourer, knowing as we do that his well-exercised instincts of ownership and self-assertion are the mainsprings of the energy and ambition which the other lacks. We shall expect to find the craftsman happier and producing better work than the repetition worker, because the fount of interest, the constructive instinct, is in his case a continually welling stream, while in the other it is in process of drying up altogether. We shall be able to say why lonely farm-colony life ceases to hold the unemployed of our big cities. We shall expect that the good nurse and the average parent will strain every nerve when those dependent upon them are in danger, because we know the strength of the instinctive power that motives their deep solicitude.

So, too, when we pass to consider questions of works organisation, we shall understand why wage systems which depend for their success upon an appeal to the impulse to rivalry will temporarily prove superior to those which do not, but expect that, unless they can win the support of other instinctive tendencies, they will gradually lose their appeal. Again, we shall not be surprised that co-partnership schemes which do not allow sufficient scope for personal ownership usually cease to attract when their novelty wears off.

But at this point we have hardly reached the cock-crow of an interesting day's work. Still, the recognition of these facts and others like them will lead eventually to a concerted attempt to remould the social and industrial system, not so much in accordance with the *a priori* systems of philosophers and politicians as with the desire that no healthy human tendency shall be wholly thwarted and no useful human energy allowed to run idle. The physicists have promised us great things as soon as they can release the energy which at present lies locked up in the atom. If it is more than an illusion that happiness and creative activity are superior to physical force, then we may hope for greater things still if we can learn how to set free for social as well as individual use the incalculable stores of psychic energy which are fastened up in baulked and misdirected instinct.

PSYCHOLOGY AT THE BRITISH ASSOCIATION

THERE was a record attendance at the meetings of the Psychology Section of the British Association at Edinburgh this year. On several occasions all the available seating accommodation was taken up. For the first time the section was fully independent and responsible for its own organisation and programme. The first president under the new conditions was Prof. C. Lloyd Morgan, and it may be said without exaggeration that he has established a precedent in his conduct of the meetings and his attention to the business side of the arrangements entailed that few of his successors are likely to improve upon. We give below a short abstract of the papers read.

1. CONSCIOUSNESS AND THE UNCONSCIOUS: C. Lloyd Morgan, F.R.S.

(*Presidential Address.*)

The presidential address dealt with the place of mind and consciousness in "emergent" evolution. Adopting the scheme of treatment employed by Prof. S. Alexander in *Space, Time and Deity*, which emphasises four evolutionary stages in the history of the world, (1) the physical, (2) the chemical, (3) the vital, and (4) the conscious, Prof. Lloyd Morgan attempted to show that with each stage of evolution a factor or quality appears which can hardly be identified with any of those from which it has "emerged." When oxygen combines with hydrogen to form water the weight of the compound is a resultant which can be calculated in advance, but the "aquosity" is something which could not be predicted prior to one's experience of it. Such a quality is an *emergent* and not merely a *resultant*. At higher levels, life, and then consciousness, emerge. This view of evolution differs from that of Bergson, who emphasises *creative* rather than *emergent* development. For Bergson the new is but the old in a riper form; for Lloyd Morgan the new is indeed novel.

What distinguishes the emergent called consciousness from the lower forms of life is that the conscious is "enjoyed," to make use of another idea from Prof. Alexander. In the development of consciousness two levels may be recognised: (1) the unreflective stage of naïve perceptual cognition, and (2) the reflective stage of judgment in which truth, beauty and goodness "emerge."

One of the most interesting portions of the address dealt with unconscious images and ideas. "Does that which we call the unconscious depend on the presence of images and ideas," asked the president, "or are images and ideas the cognitive raiment which the unconscious puts on at the emergent levels of reflective and perceptive consciousness?" Lloyd Morgan's view is different from that of Jung. Using the analogy of the plant which blossoms each spring, the president said that he inclined to the opinion that just as the conditions for the reappearance of the blossoms in due season and not the blossoms themselves are retained, so are retained the conditions for the revival of memories rather than the memories themselves.

The address was an excellent example of the scientific as opposed to the metaphysical method of interpreting the facts of existence. Science interprets the emergent factors which it finds as dependent upon, though more than, those which exist at lower levels. Metaphysics sees the highest qualities of life and consciousness already stirring in the lowliest forms of being.

2. VOCATIONAL TRAINING AND TESTS

A joint meeting was held with the sections of economics and education for the discussion of vocational training and tests. Six principal speakers took part, each contributing a ten minutes' speech, Dr. C. W. Kimmins and Mr. D. Kennedy Fraser for education, Dr. C. S. Myers and Mr. Frank Watts for psychology, and Sir William Beveridge and Miss L. Grier for economics.

The greatest interest was aroused, but the time-limit to speeches did not allow of the subject being treated in any great detail. Dr. Kimmins urged the importance of the subject, and Mr. Kennedy Fraser showed the necessity for objective measurements of ability. Dr. C. S. Myers pointed out the value of the National Institute of Industrial Psychology and Physiology for the study of this subject. Mr. Watts suggested that psychological tests could not be expected to cure the unrest due to repressive discipline and lack of opportunity for promotion.

3. THE STUDY OF PERSONALITY: Dr. H. S. Langfeld

Laboratory experiments, whether positive or negative in their principal results, usually reveal individual differences of performance which in themselves may have considerable value both for the solution of theoretical problems and for applied psychology. An attempt is being made at present to correlate the individual differences which occur in the various researches of the psychological laboratory with the results of vocational and so-called intelligence tests.

It is hoped in this way to discover the fundamental characteristics which constitute personality and to devise accurate methods of measuring such characteristics. The results so far obtained give promise of our being able to secure what have been called "profiles" of the intellectual and emotional life of individuals. The work of Miss June Downey in the interpretation of handwriting under experimental conditions (described in the current volume of the *Journal of Experimental Psychology*) has shown that the problems which are being attacked are not altogether insoluble.

4. SEX DIFFERENCES IN TESTS OF CONSTRUCTIVE ABILITY: Miss M. McFarlane

An investigation into the nature of "practical" ability showed that in a construction test used, viz, fitting together a sectional wheelbarrow, boys scored much better than girls. A further series of tests was planned to determine whether this superiority should be accounted for by (1) the relation of the constructed object to existing interests, or (2) familiarity with the kind of material employed. The new tests involved the making of a cradle and a dress. The conclusion reached as a study of the experimental results was that familiarity with the material played a considerable part in the tests, but it was plain that, in addition, boys on the whole excel above girls in the ability investigated.

5. THE EVOLUTION OF FEELING: Dr. C. S. Myers, F.R.S.

(1) Four varieties of affective tone are distinguishable, characterised by (*a*) strain and (*b*) relaxation in response to a favourable situation, and by (*c*) strain and (*d*) relaxation in response to one unfavourable. Exhilaration, gladness and interest arise from (*a*); ease, bliss and contentment from (*b*); uneasiness, distress and repugnance from (*c*); depression, sadness and apathy from (*d*).

(2) Affective tone is due to (i.) the organic harmony or discord induced by the environment; this evokes (ii.) innately purposive patterns of out-going locomotor and organic activity, partly self-controlled and producing organic sensations; the latter in turn induce (iii.) organic harmony or discord. Self-activity is "affected" by (i), (ii.) and (iii.). An innate basis is afforded by (i.) and (ii.) for affective tone which is completely developed by (iii.) derived from actual expression.

(3) Instincts are integrated from different higher and lower reflexes, emotions from different instincts, sentiments from different emotions, organised within higher systems and subjected to control and inhibition which are important determinants of the accompanying feeling. In the lowest reflexes the self is

affected only by (iii.). The higher reflexes are accompanied by affective tone evoked as described above (in 2). Instincts, emotions and sentiments are accompanied by their special feelings depending on the integration of dispositions to lower feelings and on (ii.) and (iii.).

6. PSYCHO-ANALYSIS AND SUGGESTION: Dr W. Brown

The nature of the psycho-analytic treatment and cure of psycho-neurosis follows from the analytic conception of its genesis. This calls for the emotional re-education of the patient. What is becoming more and more important as a further factor in treatment and cure is "transference." In the process of re-education the symptom of dependence upon the physician appears. This dependence must be resolved. The various forms of suggestion treatment will not avail here. The only method which goes to the root of the difficulty is the analyst's method. But although the analyst's method is most essential, at the same time the effects of bad auto-suggestion must be neutralised by means of healing suggestion. The two methods may therefore be employed as the occasion demands.

7. SOME SUGGESTIONS AS TO A COMMON GROUND BETWEEN FREUDIAN AND BEHAVIOURISTIC PSYCHOLOGY: Dr. R. G. Gordon

An attempt to indicate the tendencies which Freudian and Behaviouristic psychology both represent

A NEGLECTED ASPECT OF FORGETTING: Prof. T. H. Pear

While it may ultimately be possible to assign the explanation of one kind of forgetting exclusively to the physiologist, it is more profitable at present to attempt to differentiate between the various phenomena of forgetting from the purely psychological standpoint.

Forgotten experiences may be divided into what may be conveniently termed, (1) Embodied types of experience or memory which are further divisible into, (*a*) the apparently insignificant, and (*b*) those completely congruous with the personality; (2) Superseded or "retired" memories; and (3) Exiled or repressed memories. The superseded type of memory has hitherto received but little attention from the psychologist.

Type 1 (*a*) may be explained as due to physiological decay, or to repression, or to both together. Type 1 (*b*), though distinguishable from type 1 (*a*) on account of significance for the personality, rarely re-occurs, because there is no occasion for its independent functioning. Type 3 has received full treatment from the psycho-analysts. Type 2 represents the sort of forgotten experience which is referred to by Tennyson in his lines about the "dead selves" which serve as stepping-stones on our life's progress. It is the "dead selves" of the normal healthy person which offer a fascinating challenge to psychological interpretation to-day. There are factors in one's retained past which play an important *role* in the development of personality, factors as nearly dead as anything experienced can be.

A complete account of forgetting cannot be hoped for, however, till the relations are made clear which exist between those two most important forms of our mental organisation, the "sentiments" and the "complexes."

9. APPETITION AND REACTION: Dr. J. Drever

Freud's distinction between the Pleasure Principle and the Reality Principle appears to be psychologically to all intents and purposes identical with the distinction the speaker has drawn between Appetitive and Reactive Tendencies. An earlier psychologist had found the fundamental psychical phenomena in Belief and Desire. This is apparently the same distinction. Freud's distinction is so radical for his psychological theory—it is not negligible in the practice based on that theory—that it is imperative for the psychologist, whether Freudian or non-Freudian, to come to some definite conclusion concerning the validity of the distinction, or at least to examine carefully the phenomena on which the distinction is based, and that in the interest of the science of psychology itself.

In the case of adult human behaviour the facts seem clearly to support the view that some such distinction is valid. Action may be initiated and determined by the agreeable or disagreeable in experience. Agreeable experiences may be sought, disagreeable shunned, with reference to no end beyond the affective. This is appetition. On the other hand, action may be determined with reference to an external object or end independently of any immediate agreeableness or disagreeableness in the experience which the action involves. This is reaction. Further, it seems to be agreed among psychologists that there are tendencies, both native and acquired, which are characteristically appetitive in the sense in which we are understanding appetition. Popular thought and popular speech indicate the same recognition.

The first important question which suggests itself is: Are the two types of behaviour primitive? Three answers are possible. It may be maintained that appetition only is primitive, and reaction secondary. That is apparently Freud's contention. It is a contention which leads to many difficulties, and which it is almost impossible to adhere to. Or we may take the view that reaction is primitive, appetition secondary. If one had to choose between these two answers the writer would at any rate prefer this, which can easily be supported from the general biological, if not from the psychological, point of view. The safest view for the psychologist to take is probably that both are equally primitive.

A second important question is: What is the relation between the two biologically and psychologically? Again Freud has given an answer which is not easily justified on theoretical grounds, but is nevertheless of some practical value and significance. The general answer to this question would appear to follow from the fact that the fundamental psychological function of pleasure and unpleasure in the normal case is not to initiate action, but to guide and regulate, in spite of the apparent contradiction presented by the natural appetites. The possibility of progress and development in the individual seems to be bound up with this function. Or rather the existence of reactive as opposed to appetitive tendencies seems to be a condition essential for human progress and development. In the case of the reactive tendencies pleasure and unpleasure function normally.

10. INSTINCTIVE BEHAVIOUR. *Joint Meeting with the Section of Zoology*

Dr. J. Drever:

The psychologist maintains that no adequate scientific account of instinct is possible without taking into consideration psychological factors. Behaviour implies the total response of an organism to a situation. According to common usage, so far as this response is not determined by what has happened to the organism in its individual past history, it is said to be instinctive. This usage requires some qualification, and also limitation and elucidation, if it is to be adopted for scientific purposes. To take a particular instance, we require to find some way of marking off instinctive behaviour from the unconditioned reflex. It is at some such point that the psychological account would appear to come in. Those responses of the organism which are instinctive involve processes which, regarding them from the inner standpoint we as continuous beings are capable of taking, we denominate "experience." The charge of anthropomorphism urged against this method of interpretation is not so well founded as it appears at first sight. If we adopt a "hylomorphic" method of interpretation, there are certain aspects of what might be called the "experience phase" of behaviour which must be simply ignored by science. Even if McDougall's view be accepted, that the emotion is not a secondary development or a disorder of an instinct, this difficulty still remains.

Prof. E. S. Goodrich, F.R.S.:

No exact distinction can be drawn between the inheritance of instincts and the non-inheritance of intelligence. Both are in a real sense acquired, being the response of internal factors to the stimulation of the environment.

Prof. J. Arthur Thomson: *Different Grades of Instinctive Behaviour?*

Field naturalists are having their conceptions of nature blurred by confusions introduced into the interpretation of instinct.

(1) Is it possible to distinguish different grades of instinctive behaviour, *e.g.*, from bee to bird? (2) If instinctive behaviour, physiologically regarded, is made up of a succession of reflex actions, what evidence can be adduced in support of the view that there is sometimes a subjective aspect of appreciative awareness and endeavour? (3) May one venture to suggest a provisional diagram of the inclined plane of animal behaviour? (Diagram shown.)

On the one side of the curved axis of the diagram we see mechanical responses culminating in such behaviour as that of the calculating boy, an extreme case of unconscious mechanism. On the other side we see the trial and error experiments of the simplest organisms gradually developing until they pass into the conscious experience of the highest forms of life. In all cases of behaviour there is an admixture of the mechanical or fixed responses and of those due to experience stored in memory.

11. The Scientific Difficulties of a Naturalist: Mr. F. Kirkman

A plea for the psychological study of wild life in its natural environment.

12. The Instinct of Acquisition: Dr. W. H. R. Rivers, F.R.S.

See p. 100 of this journal.

13. Social Progress and Psychological Understanding: Mr. J. C. Flugel

Two types of advance result from the development of psychology, one represented in the growth of detailed knowledge among the experts, the other to be seen in deeper understanding of the problems of life on the part of the general public. A description of what knowledge has already been gathered up by the experts was followed by a survey of the scope of the various branches of individual and social psychology, and of the resultant reactions which are taking place in the minds of men and women as a whole towards questions of politics, society, the family, science and religion.

14. An Investigation of the Sense of Humour in School Children:
Dr. C. W. Kimmins

From the analyses of a large number of funny stories and jokes recorded by children of different ages much interesting information was obtained with regard to the varying nature of the elements most provocative of laughter and amusement from year to year, and the differences in this respect between boys and girls. The greatest changes are associated with periods of rapid growth.

15. The Investigation of Vocational Fitness among Mental Defectives:
Miss E. L. G. Ross

In view of the increasing importance being attached to the provision of industrial colonies for the permanent care of the feeble-minded, an investigation was undertaken to estimate the reliability of various forms of tests which seemed to measure abilities making for efficiency in those occupations usually provided for defectives. About fifty institution cases of various ages and grades were taken as subjects and their standing in the various tests compared with their known industrial ability and learning capacity. Those temperamental factors which go towards social efficiency were studied on the basis of the Porteus Social Ratings Scale. The results showed that we may hope for considerable success in diagnosing forms of capacity from the employment of psychological tests.

16. The Present Condition of Industrial Psychology: Mr. Frank Watts

See p. 156 of this journal.

17. A Plea for the Psychological Treatment of the Delinquent Child: Dr. A. R. Abelson

There is an accumulating amount of reliable evidence that wrong-doing is largely bound up with morbid conditions of health. An important percentage of delinquents are mentally deficient. Insanity and epilepsy are important factors. It is found that a large number of delinquent children possess a "neurotic" constitution, and psychological measures have succeeded in effecting considerable improvement where all other methods of treatment had more or less completely failed. One must also look for physiological irregularities, *e.g.*, adenoids, tonsils, endocrinal insufficiency, but even in these cases psychological treatment should be used in conjunction with the other remedial measures.

By far the best method of treatment is by psychological analysis.

18. Coloured Thinking: Miss E. M. Bickersteth

Coloured thinking (*psycho-chromæsthesia*) has in the past been considered a somewhat rare and obscure mental tendency belonging to the province of abnormal psychology. An enquiry into the colour associations of over four thousand English, Welsh and Scottish children showed, however, that coloured thinking, at least in childhood, is neither rare nor abnormal, the Highland child, in particular, being distinguished by the wealth and variety of his chromatic conceptions. Psychochromes are not usually talked about by those who possess them, and the greatest individual differences are to be found. The tendency to form colour associations seems to be little influenced by environmental changes. The subject is still in its descriptive stages.

19. The Use of "Retinal Rivalry" for the Measurement of Colour Fatigue: James G. Taylor

The experiments described in this paper were carried out in connection with the study of colour-fatigue in industries such as paper-making, where accurate discrimination of colour-tints and shades may be required. It was known that prolonged stimulation of one retina by any colour affected retinal rivalry by reducing the proportion of that colour to its "rival" in the alternating fields. Preliminary experiments showed that the proportion of red to blue, after stimulation of one retina for three minutes with red, varied in different subjects from ·76 to ·25 of the "normal" proportion.

In later experiments records of retinal rivalry were taken for thirty periods of one minute, separated by intervals of one minute. The colours used were red and blue, and the records were made by closing a key when red was dominant; except in a series of control experiments, when blue took the place of red in this respect. In the study of the records each half-minute was measured as well as each minute.

The main argument of this paper is that a decrease in the rate of fluctuation may be taken as a measure of fatigue. The rate of fluctuation decreases from the first half of a minute to the second half, from the beginning to the end of an hour, from forenoon to afternoon, and sometimes from day to day. Introspection shows that slower fluctuation is accompanied subjectively by a feeling of fatigue and also by a decrease in the apparent purity of the colours.

While change in the rate of fluctuation seems to be due mainly to fatigue, the total time per minute during which each colour is dominant seems to vary, partly with attention, partly with fatigue. Thus while the rate of fluctuation usually falls steadily towards the end of each hour, the total amount of red per minute rises and falls over periods varying from twenty-five minutes to forty minutes—which may be referred perhaps to the fluctuation of attention. In the control experiments the total amount of red per minute was much lower than in the previous experiments, and was subject to wide fluctuations, until the adaptation of attention, acquired in the previous experiments, was overcome.

Illustrations were given of records, graphs, etc.

NOTES AND NEWS

UNIVERSITIES are usually more or less quiescent during the Summer Vacations, and we have not, therefore, received many reports on the progress of research work. A correspondent in Columbia University, however, informs us that work is being done upon the following problems: The variability of reaction times; The effectiveness of warning signals; The establishment of psychological norms in the behaviour of infants; Certain aspects of reaction-time for visual stimuli; The formulation of a scale for the objective measurement of emotions; A set of psychological tests for the selection of school-teachers; A comparison of dementia præcox and manic-depressive insanity by the free-association method; Factors involved in the forgetting of names; The perception of time; Tests for Suggestibility.

AT the George Combe Psychological Laboratory, Edinburgh, the following work is in progress under the direction of Professor James Drever: Miss Annie Drysdale, M.A., B.Ed., Carnegie Research Scholar, is carrying out a Statistical and Analytical Study of Dreams in the case of the Normal Adult. Miss Mary Collins, M.A., B.Ed., is carrying out an Experimental Study of the Conditions determining Paramnesia in Normal Subjects. Miss Edith Thomson, M.A., B.Ed., is studying Group Tests, Linguistic and Non-Linguistic, for the Qualifying Stage (*i.e.*, the end of Primary School Period). The Rev. R. H. Hingley, B.A., is doing some studies in Psycho-analysis, the Association Method, and Suggestion, from the Religious Point of View. Mr. Kwei Ting Sen, M.A., B.Ed.. is engaged on a Psychological and Educational Study of the Different Types of Social Group.

Professor Drever himself is working on the Psycho-galvanic reflex and on variations of grip pressure in writing.

WE have to congratulate Mr. Robert Thouless, M.A., Fellow of Corpus Christi College, Cambridge, on his appointment to the position of Lecturer in Psychology in the University of Manchester. Mr. Thouless, who contributes a critical article on " Religion and the Sex-Instinct " to this number, has made a special study of the Psychology of Religion and has recently delivered a course of lectures on this subject at Cambridge.

We take this opportunity of wishing Mr. Thouless every success in his new post, which, we understand, will involve a considerable amount of experimental work.

THE first International Congress for Psychical Research was held this year at Copenhagen from August 25th to September 2nd (inclusive), under the auspices of the Danish Society for Psychical Research. Owing partly to the fact that the notice given was not very long, and partly to various international difficulties which still exist, such, for instance, as the question of exchange, which makes the expense of foreign travel almost prohibitive in some cases, the attendance was not very large. Nevertheless representatives from a considerable number of countries were present, or sent papers, namely: from England, America, France, Holland, Norway, Denmark, Iceland, Sweden, Germany, Switzerland, Belgium, Russia, India, and Czeko-Slovakia.

In the first seven of the fourteen countries named above definite societies of one kind or another for the study of psychic phenomena already exist, and in some other countries, as, for instance, in Germany, it is hoped that a society may shortly be established.

With regard to the papers read at the Congress, there is one point which would not fail to strike an English observer very clearly, that is to say, the marked division between the line of enquiry pursued in recent years by the majority of the English and American investigators on the one hand, and the majority of the Continental investigators on the other. Whereas the former have for the most part concentrated their attention upon purely psychical and psychological problems, such as telepathy, automatism, and the evidence for communication with the dead, the latter have mainly devoted their energies to the study of "physical phenomena," telekinesis, materialisations, and so forth.

This psycho-physical field of research has been notoriously productive of fraud, and some of the observations which Continental enquirers believe themselves to have made are so entirely outside the frame of generally-accepted scientific fact that it is no matter for surprise if they give pause to the naturally cautious mind of the Anglo-Saxon scientist. Nevertheless, in justice to these Continental enquirers it should be observed that some at least of them are making their observations along lines which have been little attempted in this country, except in the case of Miss Goligher, and which certainly yield the best hope of progress towards a scientific goal; that is to say, they are registering the effect of the supposed super-normal and unknown forces which they are endeavouring to study by means of precise scientific instruments.

For example, Monsieur Youriévitch, of the *Institut Général Psychologique*, of Paris, gave an account of some experiments he had carried out with two supposed mediums, which consisted in the discharge of an electroscope, ostensibly by means of some super-normal force emanating from the medium, and apparently without any kind of normal contact which could account for the discharge. Obviously, we are not in a position to pass judgment on Monsieur Youriévitch's experiments, either favourably or unfavourably, upon such a hasty account as it was possible for him to give in an hour's lecture, eked out by a few lantern slides. He is intending to publish his report of these experiments very shortly, and readers will then be able to form their own conclusions. Meantime we may agree that Monsieur Youriévitch's experiments have at least the merit of narrowing the field to a quite definite and limited problem of the kind with which science is accustomed to deal. Assuming the existence of these super-normal emanations, to which Monsieur Youriévitch has given the name of *les rayons Y*, it should be possible by repeated experiments to form some idea of their nature and properties.

An interesting paper was also read by a German engineer, Herr Grunewald, of Berlin, who has been trying telekinetic experiments, in the course of which he has repeated with various modifications, and with apparent success, the spring-balance experiment carried out many years ago by Sir William Crookes with D. D. Home.

One point in connexion with the evidence for physical phenomena brought forward at the Congress is worth noting as an indication of one of the useful functions which an international gathering may perform in correlating results. Both Monsieur Vouriévitch and Herr Grunewald included in their contributions references to telekinetic phenomena (quite independently observed in the presence of two different mediums), consisting in the levitation of a table. Both of them had obtained some flashlight photographs of these levitations, and in each case one photograph was shown in which some strips of white material were visible closely resembling the so-called "ectoplasm" seen in Dr. Crawford's photographs of the telekinetic phenomena observed in the presence of Miss Goligher. According to the statements of Monsieur Youriévitch and Herr Grunewald, the appearance of this white material was quite unexpected and also quite unexplained. If it is the case that we have here a real, and not only an apparent analogy between telekinetic phenomena observed in the presence of three different mediums, the point is obviously of much interest and importance.

Amongst other contributions to the Congress the following may be mentioned:

A report by Madame Bison on some recent developments in the case of Eva C.

A report by Dr. von Schrenck Notzing on a recent and unusually well-authenticated case of the "poltergeist" type.

A report by Dr. Geley on some phenomena of materialisation observed in the presence of the medium Franek Kluski (published in the *Revue Internationale Metapsychique*).

A report on some experiments in telepathy, read by a member of the newly-formed Dutch Society for Psychical Research.

An account by Dr. Magnin, of Geneva, of some cases (observed by himself) in which obsessional and hysterical neuroses of long standing had been cured by means of some psychical manifestation of an apparently super-normal character. Dr. Magnin was careful to disclaim any intention of theorising in this matter. He only wished, he said, to urge upon medical men the desirability of keeping an open mind, if only for the sake of their patients.

The contributions made by English members of the Congress included two papers on the Trance-Phenomena of Mrs. Leonard (one of them dealing exclusively with book tests and newspaper tests), and an interesting paper was read by Dr. W. F. Prince, the representative of the American Society for Psychical Research, on "Certain Characteristics of Veridical Mediumistic Phenomena Compared with those of Phenomena Generally Conceded to be Telepathic."

On the last day of the Congress a business meeting was held, at which a resolution was unanimously passed that the next International Congress should be held in 1923, and some provisional machinery was set up to make the necessary arrangements. The exact date of the Congress and the place at which it was to be held were not determined.

The thanks of the Congress were tendered to the Danish Society for Psychical Research for having successfully inaugurated what, it was hoped, might prove a useful and important movement.

AT a General Meeting of the Society for Psychical Research held on July 13, 1921, at the Steinway Hall, a paper was read by the Hon. Mrs. Alfred Lyttelton on "The Work of the Society for Psychical Research." The chair was taken by the Right Hon. G. W. Balfour.

The purpose of Mrs. Lyttelton's paper, which was intended for the public rather than for members of the Society, was to give some idea of the work already accomplished by the Society, and of its present position as viewed by one who was in no way officially connected with it whilst taking a keen interest in psychical research. Much misconception appears to exist concerning the aims and objects of the Society, and it was hoped that a clear, straightforward statement given from an observer's standpoint might help to clear the air.

Mrs. Lyttelton dealt entirely with those sections of the Society's work which relate to telepathy between the living and the question of communication with the dead. She pointed out that the outstanding achievement of the Society up to the present time had been the large amount of careful and exact evidence it had accumulated in favour of telepathy.

THE American Society for Psychical Research has recently been extensively reorganised. The death of Dr. Hyslop left a gap which, it was felt, could not be filled by any one person, and it was decided that an Advisory Research Council should be formed to advise the President (Dr. Wm. McDougall, F.R.S.) and the other officers of the Society "in all questions of policy and methods of research."

This Council is now constituted as under:

William McDougall, D.Sc., M.B., F.R.S., Chairman *ex officio*, Professor of Psychology in Harvard University, formerly of the University of Oxford.

Daniel F. Comstock, S.B., Ph.D., formerly Associate Professor of Physics, Massachusetts Institute of Technology.

John E. Coover, M.A., Ph.D., Professor of Psychology, Leland Stanford Junior University.

Charles L. Dana, M.D., LL.D., Professor of Nervous Diseases, Cornell University Medical College.

Miles M. Dawson, LL.D., lawyer, actuary, and author.

Irving Fisher, Ph.D., Professor of Economics, Yale University.

Lyman J. Gage, LL.D., formerly Secretary of the Treasury.

H. Norman Gardiner, A.M., Professor of Philosophy, Smith College.

Joseph Jastrow, Ph.D., Professor of Psychology, University of Wisconsin.

Henry Holt, LL.D., F.A.A.S., author and editor.

Waldemar Kaempffert, B.S., LL.B., formerly editor of *Popular Science Monthly* and *Scientific American.*

Samuel McComb, D.D., Canon of the Protestant Episcopal Cathedral, Baltimore.

William R. Newbold, Ph.D., Professor of Philosophy, University of Pennsylvania.

Frederick Peterson, M.D., LL.D., formerly Professor of Psychiatry, Columbia University.

Morton Prince, M.D., LL.D., Professor Emeritus of Nervous Diseases, Tufts College, editor of *Journal of Abnormal Psychology.*

Walter F. Prince, Ph.D., Secretary of the Council, Acting Director of Research, A.S.P.R.

Michael I. Pupin, Ph.D., LL.D., Professor of Electro-Mechanics, Columbia University.

Leonard T. Troland, S.B., A.M., Ph.D., Instructor in Psychology, Harvard University.

Robert W. Wood, LL.D., Professor of Physics, Johns Hopkins University.

Elwood Worcester, D.D., Ph.D., Rector of Emmanuel Church, Boston.

The Executive Officers are:

William McDougall, *President.*
John I. D. Bristol, *Vice-President.*
Lawson Purdy, *Treasurer.*
Gertrude O. Tubby, *Secretary.*
Walter F. Prince, *Acting Director of Research, and Editor.*
Eric J. Dingwall, *Director of Department of Physical Phenomena.*

It will be seen that the Society has immensely strengthened its scientific position by this re-organisation, and it is especially to be congratulated on having enlisted the assistance of so many and so eminent psychologists.

All who are anxious to see Psychical Research successfully prosecuted must be gratified to note that professional psychologists are at last beginning to realise how fruitful and appropriate a field its problems provide for their activities. We are confident that the benefit will be mutual, and we hope that English psychologists will soon follow the example thus set in America.

WE have received from Mr. Hereward Carrington, Ph.D., a Prospectus of a new Institute for Psychical Research to be called "The American Psychical Institute and Laboratory." The objects of this Institute are stated to be briefly as follows:

1. The establishment of a scientific Society . . . for the investigation of Psychic Phenomena of all kinds, whose object shall be, not only to determine the credibility of such phenomena in each special case, but, when they are found to exist, to endeavour to discover their *rationale*, thus rendering the laws governing them available for application to daily life.
2. The study of these phenomena in a properly equipped laboratory.
3. The publication of results in a monthly magazine.
4. The opening of a reference library of books.
5. The giving of sound psychological advice to those needing it.
6. The exposure of all fraud in connection with spurious psychic manifestations.
7. The formation of a membership society for fully qualified members.
8. The accumulation and detailed study of "cases," experiences, and psychic phenomena of all kinds—spontaneous or experimental—by properly qualified investigators, either here or abroad.

An appeal for funds accompanies the Prospectus, and all communications should be addressed to Hereward Carrington, Ph.D., 40, West 57th Street, New York City, U.S.A.

SURVEY OF CURRENT LITERATURE

[*As previously announced, we have made special arrangements, in response to numerous suggestions, whereby any books recommended or mentioned in our pages, as well as other psychological works, can be obtained with the least possible inconvenience and delay from* The Cambridge Magazine Bookshops (Psychological Dept.), 6, Kings Parade, Cambridge. *The proprietors have kindly consented to a scheme whereby readers of* Psyche *need not forward a remittance with every order, a system which is calculated to save much correspondence and annoyance at a time when, through abnormal trade conditions, books are so constantly out of print or rebinding.*—Ed. *Psyche.*]

Insanity and Mental Deficiency in Relation to Legal Responsibility: A Study in Psychological Jurisprudence. By William G. H. Cook. xxiv. + 192 pp. (Routledge, 10s. 6d. net.)

The object of this study, which was approved as a thesis for the degree of Doctor of Laws in the University of London, is to examine the ground upon which the law as to the civil responsibility of lunatics and of the mentally defective rests, and to show that however indefinite and contradictory the law may appear to be, the underlying principles thereof are sound and reasonable. In this Dr. Cook has been eminently successful, and in that the subject of civil responsibility is so rarely dealt with as a whole, he has filled a gap which has been too long neglected—neglected, one might say, on account of the many difficulties inherent in the subject. This work therefore cannot fail to be of great value to both physicians and lawyers alike.

He shows that the degree of liability imposed upon the insane in civil cases differs from the responsibility as applicable to crime, and makes it still more obvious that the law relating to civil responsibility of the insane "stands upon a very unsatisfactory footing." It is submitted that the Common Law of England regards a lunatic generally as being incapable of committing a tort, but that where it can be shown to the satisfaction of the Court that the particular nature of the insanity did not preclude him from understanding the nature and probable consequences of the particular act complained of, he will be liable for his torts just as an ordinary person is liable, *i.e.*, on the ground that he intended the natural and probable consequence of his acts. The incapability of the lunatic in regard to some torts on these grounds is open to question, as was pointed out in a recent discussion by Mr. Justice Atkin, who cited the case of libel in which intent to injure need not be proved even in a sane person. As to contracts, Dr. Cook holds that the decision in *The Imperial Loan Company* v. *Stone*, upon which the present law is based, that lunatics cannot plead *non compos mentis* unless the other party knew of the insanity, is wrong and is inconsistent with the Common Law of England and with the principles of equity, on the grounds that this does not apply in the case of marriage or infants, that in two modern statutes a lunatic is held to be incompetent to enter into contracts, that the Privy Council have twice at least refused to follow this decision, and that the decision relied entirely upon *Molton* v. *Camroux*, which was itself wrongly decided. In Chapters IV. and V. he gives an interesting comparison of the laws in different countries regarding marriage and divorce in relation to insanity. In Chapter VI. there is a comprehensive account of the evolution of the law relating to testamentary capacity, and it is held that each case has to be dealt with upon its own merits, a finding which is always being emphasised by the medical profession ; and it is shown that the Courts have not attempted to lay down any general rule to be followed in cases of so-called partial unsoundness of mind.

The whole work shows evidence of most careful research and is well indexed and stocked with references, but it would be an advantage for the general reader if in a future edition the dates of the cases and authorities quoted were included, for even Maudsley is a little out of date, and J. C. Prichard, quoted as "an English authority on lunacy," takes us back to the middle of last century.

Dr. Cook is to be congratulated on his book. It is the only book of its kind and can be strongly recommended to all those who are interested in the welfare of the insane.

E. Prideaux.

The Psychology of Day-Dreams. By Dr. Varendonck. With an Introduction by Prof. Sigmund Freud. (Allen and Unwin, 18s.)

Investigation of the processes which determine day-dreams is likely to be of considerable value in co-ordinating psychological doctrines. The day-dream in phantasy seems to occupy a midway position between the dreams of full sleep on the one hand and the "realistic" or "directed" thinking characteristic of active waking life on the other. It would not be difficult to construct a graded series of typical day-dreams showing a continuous gradation between these two extremes, and in this way true dreams and waking processes could be exhibited as parts of a coherent continuum.

Dr. Varendonck has made a very interesting contribution to the subject, though the stress laid in his preliminary chapter on "the two ways of thinking" raises doubts as to whether he has fully realised the importance of this continuity.

The book proper begins with an account of the genesis of those chains of thought which the author is discussing, and he examines the causes which lead to attention being switched off, so to speak, from the main line of directed thought on to the side track of more or less phantastic thinking which constitutes the day-dream. In the next chapter, devoted to the Contents of the Chains, he minutely analyses a number of his own day-dreams and shows how various wishes, preoccupations, etc., determined their course. The third chapter deals with the Termination of the Chains and shows what causes are responsible for the breaking off of the phantasy and the return to directed thinking.

Dr. Varendonck concludes that "day-dreams" are thought-structures (" sequences" might have been a better word) which have been elaborated without the intervention of the will, but under the direction of affective elements.

With this we may readily agree, though we do not think that his method of treatment by reducing every stage of the day-dream to the form of a question and rejoinder is the most powerful that could have been devised for the examination of the subject.

The second part of the book is synthetic and starts with a chapter on

Memory and Affect. This is not wholly satisfactory, for the author confuses the issue by recognising a multiplicity of " affects " (p. 188), and even refers to " intuition " as an affect (p. 191), whereas the only valuable distinction when considering memory is between that type of affect (or affective tone) which facilitates memory and that which impedes it. (*Cf.* the present writer's paper on " Memory and Affective Tone," ***British Journal of Psychology***, Jan., 1921, pp. 248 *seq.*) Similar criticisms could be brought against the next chapter on " Apperception and Affect," but Dr. Varendonck is right in insisting on the paramount importance of affective factors in all mental processes.

The remainder of the book deals with Ideation and Affect, The Issues of Affective Thinking, Visualisation and Affect and The Significance of Day-dreams. Space does not permit of a detailed discussion and criticism of those, which, though interesting, appear to the present writer to be of less value than the more positive contributions made in the first part of the book. It is satisfactory, however, to note Dr. Varendonck's final opinion that " the unconscious, pre-conscious, and conscious thought-processes are three manifestations, varying only in degree, of the same function." One wishes that he had been able to give more attention to this aspect of the subject and to show how waking, phantastic and sleeping activities merge into one another and have their characters determined by contemporary conditions. The present writer has recently observed in himself a very good example of smooth transition from phantasy to dream, and it is clear that just the same thing was taking place in the course of the phantasy described on p. 171.

The book is undoubtedly well worth reading by all who are interested in dreams and the psychical accompaniments of hypnoidal and abstracted states. Perhaps the chief objection to it is its length ; it would be twice as helpful if half as long.

Dr. Varendonck's command of the English language is wonderful, and the apology on p. 7 is quite unnecessary.

W. WHATELY SMITH.

Man's Unconscious Spirit : the Psycho-Analysis of Spiritism.

By WILFRED LAY, Ph.D. (Kegan Paul, 10s. 6d.)

" The thesis of this book is that all so-called communications, instead of being from a conscious control by another personality, physically separate from the medium, are in reality from an unconscious control by a secondary or subsidiary personality of the medium himself or herself " (p. 86).

This position is possibly correct, but Dr. Lay's exposition of it is quite worthless. He devotes much space to an account of his psycho-analytic views of the same order as those with which readers of his earlier works are doubtless familiar. He lays special stress, of course, on the Will to Believe in Immortality and the " Urges " which occasion it, and rightly concludes that this is responsible for the adherence of many persons to spiritualistic doctrines. But to prove that there is a natural tendency to accept evidence does not prove that there is no evidence to accept, and Dr. Lay quietly ignores all the evidence which is really important.

He satisfactorily demolishes one case of apparently evidential automatic script (pp. 311-315), and this is certainly a very pretty example of cryptomnesia, but no experienced psychical researcher would ever have accorded it a high degree of evidential value. He also maintains, probably quite correctly, that Mrs. Barker's writings are of wholly subjective origin, but one looks in vain for so much as a mention of cross-correspondences, literary-puzzle cases, book-tests, or those numerous instances in which evidential information is given of a detailed and specific nature clearly unknowable by the medium or any person present.

Into his feeble criticisms of telepathy (misleadingly defined to suit his own argument) we need not enter, for they have been suitably dealt with by Mr. E. J. Dingwall in the *Journal of the American S.P.R.* for May, 1921. The matter may still be *sub judice*, but Dr. Lay is not in a position to pronounce upon it.

We have often wondered why writers should imagine, as so many seem to do, that Psychical Research is alone among all subjects in demanding no technical knowledge for its satisfactory treatment, and it is high time that those who have not studied it should cease to mislead the public by their pseudo-scientific disquisitions. Of this kind of thing Dr. Lay's book is an especially bad example, and is characterised throughout by a cynical disregard of the first duty of an author towards his readers, namely, to acquaint himself with his subject.

W. WHATELY SMITH.

Education and World Citizenship. By MAXWELL GARNETT. (Cambridge University Press, 1921, 36s.)

There are three kinds of books on the principles of Education in which the psychological interest predominates. There is first the account of special methods based upon teaching experience; secondly there is the general text-book on the application of a knowledge of the mind to educational procedure; and thirdly there is the investigation of fundamental problems where discussion involves the whole experience and philosophy of the author. Mr. Garnett's book belongs essentially to the third class, though an immense amount of matter appropriate to the second has been incorporated in it, together with much practical experience as Principal of the Manchester College of Technology. It has all the characteristics of a *magnum opus*, being in fact several books rolled into one and produced with all the advantages which modern printing affords. The second half of the title is explained by the fact that the author is now General Secretary of the League of Nations Union—the attitude so suggested being rather an inspiration for the whole than the subject of any special section.

The bulk of the work is devoted to the general theory of education, and is a most comprehensive attempt to make use of recent neurological hypotheses in the exposition of the growth and development of mental processes. In particular the author builds on the work of James and McDougall, and as a mathematician is able to carry what these writers often put forward as tentative suggestions (*e.g.*, inhibition by drainage, p. 75) to their logical conclusion, thereby exhibiting facts of learning, character, volition, reasoning and so forth as consequences of primary laws of neural activity. It is interesting, however, to note that in Chapter VII. the human Will makes its appearance, in order to reinforce neural excitement, "or what amounts to the same thing, concentration of attention"; the author being an interactionist on ethical grounds (pp. 98 and 108). From which it will be gathered that the extensive use of materialistic formulæ, diagrams, and symbols which are so prominent a feature of the work does not imply a materialistic outlook in the metaphysical sense. Indeed, on p. 305 we read that "the Christian philosophy completes the discovered part of the endarchy of science with a hypothesis concerning the hitherto undiscovered central essences," though "its *experimental* character must be made clear from the outset" (p. 310).

It would not appear that Mr. Garnett is familiar with the work of Semon, though on p. 42 we find a mention of engrams. He uses throughout Morton Prince's term, "neurogram," originally confined to acquired neural dispositions, giving it Semon's meaning of disposition whether congenital or acquired. For the psychologist his most valuable contribution is in the chapters on Purpose and Reasoning, where much use is made of the experimental investigation of mental tests by Mr. Burt and Dr. Webb, dealing with factors in general ability.

The last 200 pages of the book are devoted to the application of the conclusions reached in this constructive portion to different types of schools, scholarship systems, etc. The total result is one of the most impressive attempts to found a science of Education that has yet been made; for whatever the objections to neurological hypotheses on the ground of our ignorance as to what actually does take place in the brain, it cannot be denied that the nervous system is often an illuminating working model of the mind, *i.e.*, that neurological language provides at times a surprisingly suggestive method of exposition.

The Mneme. By RICHARD SEMON. (Translated by L. SIMON, 1921. Allen and Unwin, 18s.)

It is a great pity that England should so frequently have to wait ten years before the standard authors of the continent are accessible to those of her scholars who are not also linguists. Semon's *Die Mneme* is a case in point, though here the war has been largely to blame, for the translation now offered, which is unusually clear and readable, was completed in 1914. Semon died in 1919, having in the meantime written two other important volumes, the first a continuation of *Die Mneme*, and the second an account of Conscious processes and Brain processes.

The main feature of Semon's method is the application of one and the same principle of explanation to all the phenomena of retention and recall, whether the reappearance in the offspring of parental characteristics, or instinctive tendencies, habits, and conscious memory. To mark the fact of this generalisation he chooses the term Mneme, which stands for a very general capacity of irritable substance.

The two mnemic laws (p. 148) are the law of Engraphy and the law of Ecphory:

Engraphy.—All simultaneous excitations within an organism leave behind a coherent connected engram-complex.

Ecphory.—The partial recurrence of such an excitation acts ecphorically upon this simultaneous engram-complex.

These formulations, according to Semon, replace what have hitherto been called the laws of Association. "Association depends on the conjunction of single engrams. It makes its appearance during their relatively isolated ecphory, and originates simply from the presence of the respective components in the same simultaneous complex. Association therefore is always simultaneous association." The importance or interest and attention in determining the formation of associations is strangely overlooked throughout the analysis.

After establishing and illustrating these laws both biologically and psychologically, and some discussion of the localisation of engrams (whether single engrams are stored up in special regions, or whether the possibility only of the ecphory of an engram is dependent upon such localisation), Semon proceeds to discuss the mutual influence of mnemic and new excitations, as when we note the disappearance of this or that tree in a landscape, or the presence of a new house in a street. The term "homophony" is chosen to signify the relation in which such excitations may find themselves. It is obvious that this topic, with its bearing on recognition, discrimination, and learning, merits the further attention both of theorists and experimentalists.

Semon's conclusion is that the repetition of a stimulus does not strengthen some already existing engram, but generates a new one such that subsequent ecphory of these engrams leads to excitations which are in homophony. His chief contribution seems to lie in the creation of a convenient terminology, which enables special problems, that of homophony, for instance, to be clearly formulated for the consideration of all who are interested in this very general and important subject.

On the Nature of Existence. By J. E. McTaggart. Vol. I. (Cambridge University Press, 1921, 22s. 6d.)

Psychology is more concerned with the nature of existence than most sciences, if only because so many of its problems, such as the account of Judgment or the Unconscious, are made unnecessarily difficult by a readiness to accept conclusions from the metaphysician. We therefore turn with interest to Dr. McTaggart's first instalment of the exposition of his metaphysic where the characteristics which belong to all that exists, or which belong to existence as a whole, are as far as possible determined. In a subsequent volume he hopes to consider what consequences of a practical and theoretical nature as regards existence as known to us can be drawn from the conclusions here reached.

The first questions we encounter are : (1) What is meant by existence ? and (2) What methods are available for so ambitious an inquiry ? As regards existence various classes of things have commonly been believed to be real without existing ; in addition to a "world of existence" many philosophers have hypothesised a "world of being." In his second chapter the author discusses three classes of alleged denizens of such a world ; propositions, characteristics, and possibilities. The discussion of propositions is, for the psychologist, clearly the most interesting portion of the book. Dr. McTaggart entirely rejects propositions as in any sense non-existent realities, and frames a novel theory of Truth for which only beliefs (psychological existents) not facts are required—what have often been discussed as propositions being, if anything, contents of beliefs. Such a view makes the problem of truth the concern of psychology.

As regards Method, the author is less likely to appeal to a modern reader, who may remain unconvinced that further light is really being thrown upon anything by the prolonged and subtle argumentation which follows. No difficulty is found indeed in showing that something exists, but later on a surprising lack of actuality, the subject being what it is, is evident. A "quality," for example, is said to be an "existent." "'The most virtuous of all dogs' is a quality which is not infinitely compound or complex, and which obviously cannot apply to more than one substance, though it might apply to more, if dogs should not be susceptible of virtue, or if two equally virtuous dogs should excel all others in that quality" (p. 128).

To the psychologist, who is so often concerned with the removal of entities, such as "novelty," "pleasantness" or "beauty," from the external world, and with deciding what qualities can be intelligibly ascribed, *e.g.*, to a sensation, such a verbal treatment will hardly commend itself; while for the metaphysician, any curiosity aroused by the appearance of the name of the Editor of *Mind* in the Preface is likely to be intensified by the discovery in the work itself of so few views with which that critic could be expected to agree.

The Analysis of Mind. By BERTRAND RUSSELL. (Allen and Unwin, 1921, 16s.)

Logic, Part I. By W. E. JOHNSON. (Cambridge University Press, 16s.)

With these long-expected volumes by two of the most distinguished leaders of the Cambridge school of logicians we propose to deal at some length in our next issue. Together they raise in the most acute form the question of the bearing of modern psychology on the traditional problems of the Judgment. Professor Russell, who is expected back in Europe from Pekin this autumn, has made some remarkable changes in the doctrines with which his name is associated; while Mr. Johnson, whose views have influenced a whole generation of his pupils, is well known for his treatment of logical problems in close relation to psychology.

The Psychology of Everyday Life. By JAMES DREVER. (Methuen, 1921, 6s.)

The Psychology of Industry. By JAMES DREVER. (Methuen, 1921, 5s.)

These two popular volumes by the Combe Lecturer on Psychology at Edinburgh are clearly written and attractively presented. The general Introduction deals in 153 pages with most of the topics of Psychology which the public might expect to find discussed in such a compass. The writer is well-informed and up-to-date, though his section on the Unconscious in Chapter XIV. is misleading through its uncritical attitude to the supposed indirect evidence for conscious processes of which we are not aware. The Industrial volume is a useful outline for employers and social workers, and may profitably be read in connection with Mr. Bernard Muscio's *Lectures on Industrial Psychology*, where some of the questions here approached are treated from a different angle.

Studies in Dreams. By MRS. H. O. ARNOLD-FORSTER. (Allen and Unwin, 8s. 6d.)

This is a pleasant change from the ordinary run of books about Dreams of which the great majority contain no more than an exposition of Freudian doctrines at greater or less length. With these doctrines Mrs. Arnold-Forster is well acquainted but she does not consider them competent to account unaided for all dream phenomena. She particularly questions the theory of symbolism and maintains that there are many dreams which may be taken at their face value and which possess no esoteric meaning whatever. In support of this point of view she describes many of her own dreams and relates how she has been able, in some respects, to achieve a considerable measure of control over them, notably in regard to the inhibition of unpleasant dreams.

The author's attractive style and the clear descriptions of her dreams combine to make the book very readable and interesting. It is, moreover, desirable that we should not concentrate attention too exclusively on one particular aspect of dream life; but although Mrs, Arnold-Forster is right in emphasising this, one does not feel that she has perceptibly shaken the theories at present in vogue. Dreams are determined by the *whole* of the mental content of the dreamer, and their outward form may easily be influenced by such auto-suggestive methods as the author describes. But although the superficial interpretation of a dream may be and often is perfectly obvious and straightforward, a deeper analysis, which Mrs. Arnold-Forster does not appear ever to have prosecuted, may yet reveal determining factors of the type which she wishes to repudiate. There is also an unfortunate tendency to lapse into vagueness of a somewhat "facultistic" type where the attempt is made to propound an alternative theory to that of Freud.

None the less the book is suggestive and may well be read by all who are interested in dream psychology and wish to avoid settling into too narrow a groove.

Dr. Morton Prince contributes an interesting Foreword.

W. WHATELY SMITH.

The Religious Consciousness: A Psychological Study. By JAMES BISSETT PRATT. (The Macmillan Co., 1921, 16s.)

Professor Pratt's able survey of the psychological phenomena connected with religion is the most readable and comprehensive treatment of the subject since the appearance, nearly twenty years ago, of William James' *Varieties of Religious Experience.* Writers like Cornford and Durkheim have in the meantime succeeded in throwing new light on early modes of thought; Freud, Schroeder and others have concentrated attention on the relations of religion and sex; and a number of special contributions, such as those of Morton Prince and Baron von Hügel have presented the systematiser with a considerable body of new knowledge. The attempts of Leuba and Ames to cover the material thus available were only partially successful, but with Professor Pratt's 500 pages before him, representing some twelve years' work, the reader who wishes to get a general idea of the attitude of modern thinkers may be confident that nothing very essential has been overlooked.

The avowed object of the book is to describe "the religious consciousness" from an impartial standpoint, avoiding provincialism whether geographical or intellectual. Religion is defined at the outset as "the serious and social attitude of individuals or communities toward the power or powers which they conceive as having ultimate control over their interests and destinies." Neither the definition nor the methodological treatment generally is such as to inspire confidence, but at this stage a certain latitude here is probably required if pedantry is to be avoided and the maximum of information conveyed. It is perhaps more surprising to find so lucid an exponent of "Critical Realism" writing sentences like this (p. 55):

> "Dr. Bernard Hart suggests that the word 'Unbewusste' as used by both Freud and Jung should be taken *merely as a concept,* a shorthand expression for the manipulation of our experience, rather than as a name for anything thought of as existing."

The division of words into "concepts" and "names standing for existents" surely demands some explanation, while a Critical Realist whose world (p. 198) "is largely one of representation and concepts" might well have had more to say on the psychology of conversion by argument, and particularly concerning the "trained scholastic" (p. 199) whose "entities, *no matter how logical,* will not fit in with *our modern view,* and in spite of logic we can no longer get from them any sense of reality." The italics are ours in both quotations; but we soon pass on, through theories of the Unconscious, to Childhood, Adolescence, Conversion, Revivals, God and Immortality, The Cult, Prayer, and so forth, until finally we arrive at Mystical Experience, divided into two forms, the Milder and the Ecstatic, and occupying the last five chapters.

America would seem to be an unusually fruitful field for the investigator, for not only can Professor Pratt draw upon the exploits of Billy Sunday and a variety of new cults, but his questionnaires, like those of Starbuck, reveal a continued prevalence of religious belief amongst the younger generation and in Universities (pp. 109, 317); so much so, that "out of 193 respondents to questionnaires, all but eight report that they pray." As regards the public at large, it is recorded at page 322 that a Catholic organ, *The Messenger of the Sacred Heart,* publishes a monthly list of Thanksgivings for favours granted in response to prayer. The list includes marriage, "a successful party," "increase of salary," "cow recovered," "five deals made," "preserved from active duty." *The Messenger* announced for the month of August, 1919: "Total number of Thanksgivings for the month, 4,876,932." Professor Pratt also mentions "the New Thought" prayer groups, and instances the case of "a lady of wealth and culture and of high social standing. She was spending the winter in 1917 in Washington, and had planned to give a large reception, but, when the day arrived, found it almost impossible to carry out her plans because of an extremely bad cold in the head. Fortunately at 11 a.m. she remembered her principles, and telegraphed to the Kansas prayer centre. By two in the afternoon her nose had ceased running and she was able to receive her guests without the aid of endless handkerchiefs."

The author has undertaken a special study of the religions of India in his earlier book, *India and its Faiths,* and he is able to make good use of the knowledge thus obtained. He also acknowledges indebtedness to his wife "for increased insight into the inner nature of Roman Catholicism," and his general attitude is one of unusual tolerance and sympathy. In this connection his remark about Ecstasy (p. 496)—"I can have little doubt that its dangers are greater than its probable rewards, and that it is a form of experience which should be emphatically discouraged"—might perhaps have been left to Aristotle or Macaulay; while only occasionally are there lapses into such laboratorical language as, "In cases of the Bunyan-Brainerd type the James-Starbuck view holds . . ." (p. 154). In future editions reference might profitably be made to Confucius, Mrs. Eddy, Reinach, Mauthner, Shaw, the Y.M.C.A., and Bushido; and a number of misprints should be corrected. Thus Professor W. McDougall's name is spelt wrongly in eight of the nine places where it occurs; Charbonier (pp. 339, 380, 381) is at variance with p. 460 and the Index; and there are unclosed quotation marks at p. 454.

Addresses on Psycho-Analysis. By J. J. Putnam. (International Psycho-Analytic Library, No. 1, Allen and Unwin, 12s. 6d.)

The Psycho-analysts are fortunate in the choice of an inaugural volume for their official library, and no more instructive introduction to the Freudian theory could have been provided than these collected papers of Professor Putnam, the eminent Harvard neurologist whose death occurred in 1918. Throughout the essays which cover the period 1909-1918 the impression is maintained of a remarkable personality, singularly open-minded, sensitive, and thorough—an impression which is confirmed by the testimony of all who knew their author in real life. Already in 1906 he had written appreciatively of Freud, and at page 121 (Harvey Lectures

1912) he takes back the date of his first acquaintance with the new views to 1897 :

> " I was glancing over a copy of the *Neurologisches Centralblatt* at a friend's house, when my eye was attracted by a bold claim concerning an asserted common origin for all the psychoneuroses. The paragraph stated that these neuroses never arose except on the partial basis of some disturbance of the sexual life, and that the differences in the character of the symptoms, as, for example, between hysteria and neurasthenia, were determined largely by the period of life at which this or that disorder of the sexual life set in. I was impressed by the boldness and confidence of the statements but rashly attributed these qualities to eccentricity and perhaps notoriety-seeking on the part of the writer, and laid the paper down with a distinct feeling of disgust: the reasoning, I thought, could not be correct."

This is a frank statement, and the lecturer went on to say : " How different are my sentiments at present, now that through three years' hard work I have learned what these statements really mean." The conversion was partly due to the fact that Putnam made the personal acquaintance of Freud in 1909, and from that date onwards became an ardent disciple. Almost every aspect of the recognised methods of Psycho-analysis is here considered, though, as might have been expected, divergence of opinion arose as soon as " metaphysical "issues were raised. " Uplift "is not in favour in Vienna—the recognition even of " anagogic " factors being a comparatively recent development !—and it is uplift " If these patients could have it brought home to them in childhood," etc., p. 310) which seems to be the most obvious constituent of the Professor's personal creed deprecated by both Freud and Dr. Jones. The inconclusiveness and obstinacy (p. 464) indicated are perhaps due chiefly to a lack of training in epistemology : " To explain any matter," he writes (p. 299), " is to discover the points of similarity, or virtual identity, between the matter studied and ourselves." Such a definition of " explanation " is not likely to lead to the formulation of a convincing metaphysic.

It remains only to add that the International Psycho-analytic Press has taken advantage of the present state of the exchanges to print in Vienna. The result, in spite of the inevitable minor misprints, is in every way satisfactory from the consumer's standpoint, and suggests that in proportion as their defeat is rendered more complete the Central Empires may tend still further to become the printers of the learned world.

Psycho-Analysis and the War Neuroses. A Symposium, with an Introduction by SIGMUND FREUD. (International Psycho-analytic Library, No. 2, Allen and Unwin, 7s. 6d.)

Those who are surprised at the number of English medical men who have been led by their war experience to look favourably on psycho-analytic methods of treatment will find ample explanatory material in this slender volume, which includes within the compass of sixty pages both the 1918 Symposium at Budapesth, held two months before the Armistice, and an address by Dr. Ernest Jones which has already appeared in his *Papers*. In the opinion of psycho-analysts, and in the terminology of Dr. Abraham, one of the contributors to the Symposium, " the ætiology of the traumatic neuroses " tends to be regarded more and more from psychological points of view, but academic neurologists have not yet been persuaded to allow due weight to the " sexual " origin of war neuroses in general nor to consider, e.g., self-sacrifice as a " renunciation of narcissistic privileges " (p. 24). Some interesting and instructive explanations of " shell-shock " are discussed, and a good deal of information, not otherwise obtainable as to the attitude of continental neurologists is provided. But, as Freud says in his Introduction, " most of the neurotic diseases which had been brought about by the war disappeared on the cessation of the war conditions," and an invaluable opportunity, which it is to be hoped may never occur again, was missed. In view of the fact that relapses are always liable to occur, outbursts both in those who have passed through the hospitals and in others affected by the violent scenes of the past six years may be expected from time to time. It is worth noting (p. 41) that such relapses may occur even owing to " patients getting into the old surroundings through re-employment by the military," and in this connection the significance of anniversaries and celebrations should not be overlooked by alienists.

Trade Tests: The Scientific Measurement of Trade Efficiency. By J. CROSBY CHAPMAN, D.Sc. (Harrap, 1921, 15s.)

When in 1917 the U.S. Army authorities found that they had to deal in a hurry with a problem for which their organisation was quite unsuited, rough-and-ready methods were devised whereby the wastage of man-power could be minimised. Dr. Chapman, Associate Professor of Educational Psychology at Yale, was one of those who was called in to devise Trade Tests, and the results of his experiences are here collected. Unless, however, with the progressive dehumanisation of industry the hopes of the author are realised, and " the principles of army trade test construction are adapted to the needs of the industrial plant," it is hard to see what part the interviewer without technical knowledge can profitably play in the industrial world of the future. As a record of an ingenious attempt to meet temporary needs this volume has a certain ephemeral interest; where the American technicalities allow, it might occasionally be studied with profit by magistrates and continuation-school teachers; but as an addendum to the Labour Exchange or to the equipment of the efficiency expert it is hard to wish it any lasting influence.

The Essentials of Mental Measurement. By WILLIAM BROWN and GODFREY H. THOMSON. (Cambridge Psychological Library, Cambridge University Press, 21s.)

Dr. Brown's original work with this title was published ten years ago, and in the present volume only three of the original sections survive without considerable alteration. Dr. Thomson, who is Professor of Education at Armstrong College, Newcastle, is responsible for five entirely new mathematical chapters. The result is so inconclusive and controversial in character, that the authors wisely refrain from summarising results and theories in non-mathematical language, and it is perhaps surprising to find such a study included in a series which purports to provide the public with " definitive " studies in the various fields covered. The reader must be warned that he will look in vain for any treatment of fundamental issues in relation, e.g., to the views of Bergson and his followers; the only reference to the bearing of such work as that of Russell on Measurement is *via* a quotation by Dr. Dawes Hicks (p. 11); students of Mental Fatigue, Rate of Forgetting, and a variety of special problems will not find their difficulties mentioned; even studies which have influenced an important group of investigators, like that of Meinong on Weber's

Law (*Abhandlungen* II, 3) is not chronicled. The inquirer who is attracted by the electrical work of Waller and Prideaux, or by Intelligence tests as dealt with in Terman's recent manual, will find little that is of direct assistance, though Binet receives a mention at page 56; and the section on Probability will need overhauling in the light of Mr. Keynes' new *Treatise*.

Specialists, however, will welcome the publication of this contribution, and it is certainly the most important single source of information at present available. Interest in this country is likely to turn chiefly on Dr. Thomson's Criticisms of the "hierarchical order" on which Professor Spearman has written so much in the *British Journal of Psychology*. It is here objected, in Chapters IX. and X., that hierarchical order is the natural order amongst correlation coefficients, and that it only expresses the fact that these coefficients are themselves correlated. Professor Spearman, who, it is gratifying to note, has read these Criticisms in proof, believes that the perfection of hierarchical order among psychological coefficients is extraordinarily high, and not (as his critics contend) a chance occurrence. On this question, as on that of the use of ranks instead of measurements in calculating correlations, there is clearly more to be said, and whether or no what is said will contribute anything to the progress of psychological science, the authors are to be congratulated on a lucid and forcible presentation of their side of the dispute.

The Problem of the Nervous Child. By ELIDA EVANS. With an Introduction by DR. C. G. JUNG. (Kegan Paul, 12s. 6d.)

Mrs. Evans enjoys the advantages of a considerable first-hand experience with nervous children and a certain knowledge of the psychoanalytic doctrines of the Zurich school.

These have enabled her to write a book which is well above the average of those usually published on this subject. In general it may be said that the conclusions reached and the general advice given are sound enough, but it would be possible to point out many imperfections in the technical matter adduced by way of support or illustration.

Thus the suggestion that a permanent feeling of loneliness was due to the patient having been "laid aside for a long time before his first bath (at birth), owing to the critical condition of his mother," will strike most people, including psycho-analysts, as rather preposterous. Similar criticisms would apply to the whole of the chapter on "Muscle Erotism": it is only necessary here to point out that the boy whose case is described on pp. 201-221 would be regarded by most experienced psychiatrists as a typical case of the moral imbecile. If Mrs. Evans could have given us the history of this case up to the age of say twenty-one years, it would have been of very great interest. As it is the patient is left at the age of about fifteen or sixteen, and it is at least questionable whether the alleged "cure" would be permanent.

It would be easy to multiply criticisms of this kind, but although Mrs. Evans' psychological foundations are often faulty, she has none the less produced a book which cannot mislead and may well assist parents who are not easily frightened by imperfectly explained technicalities. The expert can take care of himself.

Freud's Theories of the Neuroses. By DR. H. HITSCHMANN. With an introduction by ERNEST JONES, M.D., M.R.C.P. (Kegan Paul, 10s. 6d.)

Much of the controversy which has raged around Freudian doctrine has been due to sheer ignorance. This ignorance has not been confined to critics, but has also been only too prevalent among self-styled followers of Freud.

Such small excuse as there may once have been for this state of affairs is now removed by the publication of this English Edition of Dr. Hitschmann's valuable book, which has long been known, in the American edition, as probably the most complete and accurate summary of Freudian views.

Since it is a summary and not an original thesis it is scarcely possible to " review " it in the ordinary sense, for this would involve writing a complete *critique* of Freud's psychology. We can, therefore, do no more than welcome it as a valuable addition to the accessible English literature of the subject, and urge that those who have not the opportunity of studying Freud *in extenso* should read it before avowing themselves as opponents or adherents of his views.

The Psychology of Behaviour. By DR. ELIZABETH SEVERN. (Stanley Paul, 8s. 6d.)

Dr. Severn has achieved considerable success as a practising psychotherapist, and it is very likely that her book will be of interest and service to those who have no knowledge of scientific psychology and do not object to such vague admonitions as " *cherish your Imagination*." The book is not, indeed, a scientific work at all, and certainly adds nothing to our knowledge of the subject. It is far too full of italics and capital letters; and certain "explanations," such as that of Suggestion on pp. 41 *seq.*, are no more than vague analogical descriptions. On the other hand there is little that is actively misleading in the book (except such statements as, for example, that suggestion is the prime mover in psycho-analytic treatment, p. 43), and the authoress's account of Emotions and Motives will doubtless be found interesting by those who dislike a too rigid treatment of the subject.

Her emphasis of the importance of proper sex education and enlightenment from the earliest years is admirable, and indicates a point of view with which we have every sympathy.

Quite a pleasant, popular book, in fact, but of no permanent value. The title, as suggesting a mode of treatment similar to that adopted by Professor Watson, is misleading.

PERIODICALS

Mind (July, 1920) has an interesting article by E. Rignano on " A New Theory of Sleep and Dreams." In this the tendency of current theories to neglect the connection between dreaming and the state of sleep, as such, is criticised and a new theory propounded based on a distinction between affective and intellectual psychic activities, of which the former alone are considered to be abolished by sleep.

Scientia (July, 1921) has two articles of psychological interest. In the first, " La Constitution de L'Individualité " (Part II. " L'Individualité Psychique "), M. Suñer, of the University of Barcelona, continues his study of Individuality. His final conclusion is as follows: " At bottom and in every case it is the chemical correlation which decides individuality regardless of whether the organism possesses a nervous system or not. Secondly . . . as a consequence of this primitive factor . . . there is the nervous integration due to the differentiated elements imposed by the necessities of adaptation. . . . Complex reflexes and the personal reflexes with the feeling of ' self ' are the two aspects of one and the same process. The Ego is the supreme synthesis, the supreme unity perceived by our consciousness; it responds to the highest and most complex reflex which our study of objective psychology shows us. The individual is defined . . . in all its physiological or chemical manifestations by the rigid unity of its whole being, a unity which makes possible the transmission of its characteristics to descendants."

In the second article Dr. C. Baudouin expounds the most recent view of Suggestion as held by the New Nancy School on the same lines as his recent book, *Suggestion and Autosuggestion.* He insists that "the central and truly remarkable idea of Couée" (the leader of the school) "is that autosuggestion ought to be practised absolutely without voluntary effort" on the ground that effort produces, *ipso facto,* a suggestion of difficulty which acts as a neutralising force.

Quaderni di Psichiatria (Nos. 7-8, 1920) has a paper by W. Mackenzie on "Thinking Animals and the Hypothesis of Concomitant Automatism," in which the author describes the achievements of Lola, daughter of Rolf, the celebrated dog of Mannheim. He dismisses trickery as out of the question, and suggests that the feats are performed by virtue of some kind of telepathic *rapport* between the dog and her trainer.

Rivista de Filosofia (March, 1920). E. Mouchet contributes a paper on "The Perception of Obstacles by the Blind." He concludes that the ability of the blind to "sense" obstacles is due to the reflection and distortion of sound-waves by the latter. (*Cf.* recent work on the flight of bats, which led to similar conclusions.)

Rivista di Psicologia (April-June, 1920). V. A. Buscaino writes on "The Relation between Subjective States and Somatic Changes with Regard to the Theory of Emotions." He reminds us that the James-Lange theory of the somatic origin of emotional states was anticipated, in some considerable measure, by Bocalossi, Lancisi, and others, and adds Schopenhauer, Hobbes, and Meli to the list. He also cites a variety of data, mainly experimental, which tend to support the view that somatic changes are the cause of emotional states and not *vice versa.*

Studies in Mental Inefficiency (July, 1921). 1. "Glimpses of Canada and the United States," by A. Helen Boyle. 2. "On the Rate of Progress of the Mentally Defective," by W. B. Drummond. 3. "The Younger Generation and the 'Almosts,'" by Dr. Helen MacMurchy.

Revue de Metaphysique (1921). The evolution of contemporary thought in matters of jurisprudence is dealt with in No. 1 by G. Davy in connection with the new edition of Gény's *Méthode d'interprétation.*" No. 2 is devoted entirely to current economic problems.

Praktische Psychologie (Leipzig), 1921. No. 4 contains an account of recent work in the measurement of Fatigue by Prof. E. Weber, of Berlin. In No. 5 Dr. E. Stern, of Giessen, advocates the Montessori method, any Dr. Piorkowski, one of the editors, begins a study of Memory-training continued in No. 6. The July number (10) is devoted entirely to a surved of the problem of Trade Tests by Dr. W. Moede. Last March this journal, which was founded in 1920, raised its price ("we hope for the last time") to 50 marks per annum, equivalent at the time of writing to 3s. 6d., so that English readers get remarkable value for money, each monthly part comprising between thirty and forty pages of text.

Revue Philosophique, Nos. 7 and 8, July-August, 1921. V. Basch summarises the results of his reflections on the Psychology of Beauty since 1896 (when he published his Essay on Kant), and now allows "an infinitely greater importance to the intellectual function of the æsthetic act." His solution is, however, merely a restatement of the doctrine of Empathy and adds nothing to the work of Lipps. Paulhan writes on "The Perception of Psychic Synthesis," and there is an able article by H. Piéron on the problems of Aphasia.

Zeitschrift für Psychologie (1921), Vol. lxxxvi., Nos. 1-3, is concerned exclusively with optical problems. No. 4 contains a study of Association Tests with nonsense and significant symbols.

Archiv für Psychiatrie (1921), Vol. lxii., No. 3, and Vol. lxiii., No. 1. Felix Georgi gives an experimental analysis of the physiological conditions of the psycho-galvanic phenomenon, which he studied during hypnosis. F. Kanngiesser on obsessive neuroses; Klieneberger on homosexuality; Galant on wish-fulfilment in dreams.

Monatsschrift für Psychiatrie und Neurologie (1921), Vol. xliv., Nos. 1-6. Otto Sittig on colour sense in Aphasia. T. H. Schultz on self-observation of different layers of consciousness in hypnotic states; Santangelo on stereognostic and symbolic perception of objects; Arnold Pick on the psychology of confabulation.

Zeitschrift für die gesamte Neurologie und Psychiatrie (1921), Vol. lxii.-lxx. T. H. Schultz describes experimental studies of reproduction, memory, learning and sense of rhythm in organic and functional disorders due to the war. Tossmann gives a historical survey and psychological analysis of prepotent ideas (Überwertigkeit). Bleuler defends the necessity of the conception of subconsciousness against Bumke; the soul cannot be thought of as an intelligible whole with elements causally related to each other without this conception. S. Fischer analyses modern theories of the differences between sensation and representation (Empfindung and Vorstellung); they are not essentially different but known from each other by experience. Paul Schilder writes about obsessive impulses; R.A.E. Hoffmann seeks to characterise definite psychological types and their relations to pathology and reaction. Marcuse discusses the energy theory of mental disease. H. T. van Hoop deals with the question of whether the sequence of psychical phenomena should be causally interpreted. H. de Tong records the plethysmographic effect of emotions conjointly with the involuntary respiratory movements of the arm in normal and insane persons. Robert Gaupp describes a dramatic poem on delusion by a paranoiac—the patient wrote a play on King Ludwig II. of Bavaria, showing a remarkable insight into his own psychology. Paul Schilder: on the psychology of mania, based on Freudian conceptions, with some new points of view especially on psychic causality. W. Lurge regards the fundamental attitudes and ideas in Buddhism and dementia præcox as identical, both being autistic. Reiss describes formal variations of personality as produced by changes of milieu. Emil Kraepelin writes on the Psychology of work; the continual production of identical volitional acts is studied in stringing pearls, the tension of will by number-addition at maximal and normal speed; he discusses the importance of rest-pauses for efficiency, and the influence of emotional factors.

Archiv für die gesamte Physiologie (1921), Vol. cixxxix., Nos. 1-4. Einthoven and Roos find the causes of the psycho-galvanic reflex phenomenon in variations of the difference of potential between the electrodes and the skin, and distinguish changes both of polarisation and resistance, which may be separately studied. Changes in blood supply are not the direct cause, for the reflex is found also in bloodless limbs. Gellhorn on the physiology and psychology of fatigue and exercise; both show in simple psychic and sensory process typical relations; tired persons show depression of body-temperature and pulse-rate, the last more markedly after mental work.

Zeitschrift für Biologie (1921), Vol. lxxiii., No. 4. Karl Hansen, on the threshold for the sense of pressure. If only very small areas are excited, Weber's law does not hold true ; it depends on the extensity of excitation.

Ergebnisse der Physiologie (1921), Vol. xix. H. Henning on the physiology and psychology of taste, with remarks on threshold, Weber and Fechner's law, reaction time, fatigue, synæsthetic phenomena, hallucinations and illusions.

Die Naturwissenschaften (1921), Vol. ix., No. 21. Fr. Bruno Hoffman, on the physiological basis of consciousness, tries to give the theory of parallelism a concrete foundation by showing analogies between psychic processes and biology of brain-cells.

The Society for Neurology and Psychiatry of Vienna held in June,1921, a symposium on the new course in Psychopathology, discussing the importance of modern Psychology and Phenomenology for the theory and clinical treatment of mental diseases.

The Society for Applied Psychology and Psychopathology of Vienna (1921). Papers were read by Schilder on the psychology of mania, by Bernfeld on the psychology of group-formation in youth, by Alfred Adler on individual psychology, by Allers on the psychology of modern Art, by Bychowski on regression and autism in modern civilisation, and by Neurath on psychological factors in economical development.

Zeitschrift für Psychologie (1921), Vol. lxxxvii., Nos. 1-5. Erich Becher on W. Köhler's theory of the physiological processes underlying the perception of forms (Gestaltwahrnehmung): Georg Margenski on the central transformation of colours. The work of Jaensch on the psychology of youth and the genesis of intellectual life is continued by Edith Gottheil with a study on latent sense-memory, by E. R. and W. Jaensch : on the frequency of eidetic disposition in youth, and by Gösser on the different phases of memory, after images, Anschauungsbilder, etc. The series of papers on the psychology of colours, also under the direction of Jaensch, is continued by Bernhard Herwig on the inner colour-sense and its relation to light-sense, and by Herwig and Jacnsch, who studied the mixing of objective colours with those of memory-images.

Zeitschrift für angewandte Psychologie (1921), Vol. xviii., Nos. 1-6. A comparative study on the process of work, by T. S. Segmanski ; S. Valentiner gives a mathematical analysis of the measure of endowment, substituting the formula $\sqrt{\frac{S-1}{2N}}$ for the older $\frac{S}{N}$. W. Heinitz on errors in typewriting. Lindworsky tries to find a method for measuring intelligence in a paper on the solution of thought tasks (Denkaufgaben) ; G. Heymans and H. T. W. Brugmans on the special psychology of dreams ; they find a marked parallelism between the behaviour in waking life and the specific characteristics of dreams. F. Plaut on the principles of the psychology of advertising ; Johannes Vieweg on psychical development in adults and children studied by means of the Kinematograph (Aussageversuche) and the psychology of children as witnesses. D. Katz and G. Révész analyse the memory for sound and melody and the optic control of movements in fowls, in a paper on experimental studies in comparative Psychology.

Allgemeine Zeitschrift für Psychiatrie (1921), Vol. lxxxi., Nos. 1-6. Bleuler on the problem of abreaction ; Schilder on the sensation of strangeness and loss of personality.

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